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THE CLINICAL SIGNIFICANCE OF RECENT STUDIES OF THE CAPILLARIES*

BY ERNST P. BOAS, M. D.

Medical Director, Montefiore Hospital for Chronic Diseases, New York City, N. Y.

THE capillaries, to use a paradox, are, from the physiologic point of view, the heart of the circulation. The heart is the pump that keeps the blood in motion, the arteries are elastic reservoirs and tubes that relay the energy generated by the cardiac contraction and maintain the blood flow during diastole, the veins return the blood loaded with waste from the tissues to the heart; but it is in the capillaries that the vital function of the circulation is achieved. The function of the circulating blood after all is to be the vehicle by means of which the substances necessary to the life of the tissues reach the cells, and through whose agency the waste products of metabolism may be removed from the cells and be disposed of in one way or another. It is in the capillaries that this exchange between the tissues and the blood takes place; and it is because of an abnormal flow of blood through the capillaries in various parts of the body that symptoms of disease arise when the circulation is impaired in whole or in part. Thus heart failure sufficient to cause chronic passive congestion of the viscera is of significance, because the stasis of the blood in the capillaries interferes with the metabolic activities of the organ involved and results in symptoms referable to malfunction of that particular viscus. The blood flow in the capillaries, therefore, is a measure of the efficiency of the circulation.

This fact alone should suffice to direct our attention to these microscopic elements of the circulatory apparatus. But when we inquire further we learn that the capillaries are not mere passive carriers of the blood, nor passive membranes through which the exchange of gases, nutritive material and waste between the tissues and the blood takes place, but that they share with the heart, arteries and veins in the dynamics and in the regulation of the circulation. To obtain a complete view of the rôle which the capillaries play in health and disease, we must determine to what extent alterations in their form and function exert a local effect on the tissues with which they are in contact and in how far they exercise a systemic effect, due to the fact that they are an integral part of the circulatory apparatus. In order to approach the subject it will be well to refresh our minds with a brief discussion of their morphology and physiology.

We are all well acquainted with the structure of the capillary as a simple endothelial tube. It is not so well-known, however, that in addition to the endothelial elements, there are affixed to the outer capillary wall scattered cells of irregular shape, which send processes that resemble pseudopodia to encircle the capillary. These cells were first described by Rouget over 50 years ago. Little attention was paid to them until in recent years Vimtrup, working under Krogh, was able to demonstrate them very clearly, and to show that they possess the power of contractility, and that changes in their shape correspond to changes in the caliber of the capillary vessel. Networks of fine nerve fibrils have been demonstrated surrounding the capillaries.

The first observations that suggested that the capillaries have the power of independent contractility and dilatability were made 60 years ago. In 1865 Stricker studied the capillaries of the nictitating membrane of the frog and saw them contract and dilate in response to mechanical, chemical, and electrical stimuli. He believed that these changes were due to a turgescence of the capillary endothelium. A few years later Rouget confirmed these observations, but ascribed the phenomenon of contractility to the spindle cells which he had found in the capillary wall. In 1903 Steinach and Kahn amplified these observations and were able to establish the very important fact that the capillaries of the nictitating membrane of the frog contracted following electrical stimulation of the sympathetic nerve that supplied this structure. More recently Hooker has demonstrated constriction and disappearance of the capillaries of the cat's ear on electrical stimulation of the cervical sympathetic nerve.

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Many years ago Severini observed constriction of the capillaries on their exposure to oxygen and contraction on exposure to carbon dioxide. Krogh was unable to establish a close relationship between these gases and the degree of capillary patency, but noted that the capillaries relax and become greatly dilated when the blood supply has been shut off, and that they resume their normal tone when the blood again circulates through them. He showed that this phenomenon depends on a particular constituent of the blood which he was able to identify as pituitary extract.

Drugs, too, act directly on the capillaries. Histamine produces a profound dilatation, epinephrin and pituitrin a contraction. Nitroglycerine too causes their dilatation.

Thus the evidence that the capillaries possess the power of active contraction and dilatation and that they may determine the blood flow to a part independently of the arterioles is quite conclusive. Due to the direct action of metabolites they respond to the local needs of the tissues by dilatation when there is an excess of carbon dioxide or of other factors, by constriction when this is relieved. They are further under control of the central nervous system and respond to certain stimuli by contraction, thus affecting the blood supply of the part in question. They are probably also influenced by certain internal secretions.

These, however, are all local reactions. It remains to inquire what effect the variations in capillary tone may have on the general circulation. The experiments of Krogh have been very illuminating on this point. He has demonstrated by injection methods and by direct observation that the number of capillaries patent at any one time in a particular organ depends largely on its functional activity. Thus, in a frog the vessels of the liver and brain are always well injected, with nearly all of the capillaries open. In muscles the number of patent capillaries depends on the degree of activity the muscles have been undergoing. Thus a stimulated muscle showed 195 capillaries per square mm., while the corresponding unstimulated muscle from the other leg showed no more than 5. The diaphragm which always works vigorously up to the death of the animal showed 2500 capillaries per square mm. The results of his studies may be briefly summarized. At any one time in the normal body only a small fraction of the existing capillaries are functioning and filled with blood. The others are inactive and contracted, but may, at a moment's notice, be shunted into activity. They represent, therefore, an enormous potential reservoir for the blood, and it is apparent how the closure of one capillary field and the opening of another may divert the blood from one part of the body to another. A sudden flooding of the circulation with a large amount of fluid, as happens in the course of a transfusion, is rendered harmless by the capacity of the reserve capillaries of taking up the excess blood.

Conversely, it is readily comprehensible how a profound disturbance of tone or function of the whole capillary system may be reflected in general disorders of the circulation. The most dramatic illustration of such an effect is seen in the condition known as shock. Dale and Cannon have shown quite conclusively that in shock the essential disorder is a paralytic dilatation of the capillaries. As a result of this paralysis the blood accumulates and becomes pooled in the capillary vessels; the patient, so to speak, bleeds into his own capillaries and there is an insufficient amount of blood in the heart and arteries to carry on the circulation. Hooker has demonstrated photographically the dilatation of the capillaries following histamine shock and recently Freedlander and Lenhart observed it clinically in several patients who were in shock. This is the most striking illustration of the manner in which disorders of the capillaries may disturb the circulation even when the heart and arteries are normal.

Recent studies suggest that capillary paralysis induced by toxemia is responsible for the circulatory failure that accompanies many infections such as pneumonia and peritonitis. No other satisfactory explanation has been offered. Indeed, many experiments have been performed to show that neither the heart, the vasomotor center, nor the arterioles are at fault.

This much may be accepted as fact. If one may be permitted a little speculation one can point out that the milder circulatory disturbances that so often persist for months after an acute infectious disease are very possibly correlated with a similar widespread disordered capillary function. In these patients one encounters palpitation, precordial pain, dyspnea on exertion, rapid pulse and various vasomotor manifestations in the extremities. All too frequently a myocarditis is held responsible for these symptoms, although pathologic studies show that the heart is rarely seriously affected in acute infectious diseases. It is very probable that as a result of a direct or indirect injury to these minute blood vessels there ensues what Solis Cohen has termed "a vasomotor ataxia" which has its seat in an altered capillary tone. As will be pointed out subsequently, it seems likely that the constitutional states associated with profound vasomotor disturbances, such as those seen during the war under the name of neurocirculatory asthenia, are dependent on or associated with an altered condition of the capillaries.

The symptoms of disease that have just been discussed arise through loss of capillary tone. The conclusion seems inescapable that conversely abnormal constriction of large areas of the capillary bed must increase the peripheral resistance to the blood stream and so give rise to abnormal dynamic conditions in the circulation. This is a point that is more difficult to prove, but a number of facts indicate its extreme probability. Lewis was able to show that the capillaries are able to exert an active constrictive force of at least 30 mm. mercury and I have found that certain cases of hypertension are characterized by an elevation of the capillary blood pressure. In thinking of the factor of peripheral resistance, therefore, we must consider the capillaries as much as the arterioles.

The study of the living capillary in the human body was made possible by the discovery of Lombard, an American physiologist, that by means of a drop of oil or glycerine placed on the skin the minute dermal blood vessels are rendered visible to microscopic inspection. When a drop of castor oil is applied to the area of skin that is to be observed and a strong light is thrown upon it from one side, the capillary loops are clearly visualized if a magnification of about fifty to eighty diameters is used. The oil on the skin serves the same purpose that the oil used with an immersion lens does; it smooths out the many irregularities of the skin which reflect and refract the light, so that no clear image is possible. The skin of the hand or finger may be studied successfully in this manner with an ordinary microscope by placing the hand on the stage of the instrument. The study of the skin capillaries of the rest of the body requires a microscope especially adapted to this purpose, which consists essentially of a microscopic tube so mounted, that it may be applied directly to the part under examination.

The cutaneous capillaries are derived from the subpapillary arterial plexus which lies just below the cutis, and ascend the papillae of the skin vertically to the surface. By the method employed, therefore, we see only the tangential aspect of the top of the vertical capillary loop. It is so short that observations of the morphology of the capillary and of the blood flow within it are almost impossible. However, at the base of the finger nail the papillae of the skin are flattened out and, as a consequence, the capillary loops here assume a position parallel to the surface of the skin. They can therefore be visualized in their whole length. The same area of the toes can be used but the clumsiness of handling the foot makes it impractical for routine work.

When the skin at the base of the nail is observed in this manner, the capillary loops stand out very clearly and their morphology and the character of the blood flow through them can be studied. With the aid of a special instrument designed by Danzer & Hooker, which is in essence a small transparent air chamber connected with a mercury manometer, by means of which pressure can be exerted on the skin while the capillaries are kept under observation through the microscope, the blood pressure in the capillaries may be estimated.

Let us first direct our attention to the morphology of the capillaries observed in this manner. In discussing variations in structure it is always important to have clearly in mind what is meant by the normal. One sees a row of small hairpin shaped loops just proximal to the cuticle. The next row below these consists usually of shorter vessels which, in the succeeding rows, become still shorter and comma shaped. The comma forms predominate in the skin in other parts of the body. This is due to the arrangement of the papillae of the skin described above. The disposition of the vessels and the clearness with which they can be seen depends in part on the condition of the cuticle and of the skin. If the cuticle is pushed far back by manicuring, it will be very difficult to see any long loops and those visible may be distorted. If the skin is thick and scaly, visualization of the vessels will be difficult. If the skin is atrophic and the papillae are flattened out, many rows of long vessels will be seen and the subpapillary venous plexus may be visible. One must be circumspect, therefore, in drawing generalizations from the capillary picture observed. Furthermore, it must always be kept in mind that the capillaries of the skin form but a fraction of those of the whole organism, and that there is no necessary correlation between abnormalities of the cutaneous and visceral capillaries, any more than between the peripheral and visceral arteries.

In the capillaries, just as in the arteries, a change in structure usually manifests itself by a lengthening of the vessel with a consequent tortuosity in its course; so that in pathological states the capillaries become convoluted and elongated. This may be explained either by an actual alteration in the structure of the capillary wall or by a disturbed innervation causing a loss in tone of the vessel with consequent lengthening.

The most interesting condition in which an altered capillary picture is encountered is the constitutional disorder called the vasoneurotic diathesis by Ottfried Mueller and his school. This name is applied to patients who from birth and by inheritance are unable to stand the stresses of life. They frequently conform to the asthenic habitus and complain of a wide variety of symptoms, which may be ascribed to an alternation of spasticity and atony of their smooth musculature. They may suffer from indigestion, or from the circulatory symptoms characteristic of neurocirculatory asthenia; the women complain of dysmenorrhea, there may be psychasthenia or neurasthenia. Their condition has aptly been described as an irritable weakness. Mueller classifies the various vasomotor disorders, from simple acrocyanosis to erythromelalgia and Raynaud's disease, in the same category.

The capillaries of the nail bed in these individuals usually show marked deviations from the normal picture. They are numerous and elongated; the arterial limb is narrow, but the venous portion is thick and often convoluted. Anastomoses between adjacent vessels may be seen, and the subpapillary plexuses are often visible, giving a picture of a very complicated and bizarre vascular network. The capillaries of the skin in other parts of the body are more numerous and longer than usual. Of course, these changes may be present in varying degrees. It is difficult to be sure of their significance, but it seems probable that the manifold symptoms ordinarily assigned a functional origin may be determined by circulatory disturbances caused by a loss of capillary tone and coördinated capillary function.

I have had the opportunity of studying a considerable number of subjects suffering from acrocyanosis, which is so common in the type of individual under discussion. The capillary picture corresponds to that described above and the blood flow in the capillaries is very sluggish, and at times completely arrested in groups of vessels. After immersion of the hand in hot water, the streaming became very rapid and the capillaries became quite full.

Some experiments of Lapinsky suggest a possible cause for this alteration in structure. He studied the capillary circulation in the web of a frog's foot after the corresponding sciatic nerve had been severed. For a short period after the nerve had been cut, the blood flow was slow and the vessels empty. In a few days the capillaries were dilated, and the blood stream became rapid. Later the capillaries became wide and tortuous, and the blood flow again became slow. Lapinsky attributed the change in the form of the capillaries to a loss of elasticity and contractility, which resulted in a widening and a lengthening of the vessel. The convolutions are thus dependent on an increase in length of the capillary, just as the tortuosity of the peripheral arteries is dependent on an increase in length. It seems rational to suppose that the morphologic and functional changes in the capillaries of patients with vasomotor disorders are due to a disturbed innervation which affects them in a similar manner. It is impossible to say what factors lie behind or are added to the loss of normal nerve control, but I venture the suggestion that malfunction of some of the internal secretory glands is an important element.

In cases of Raynaud's disease the capillaries are greatly distorted and giant forms are not infrequently encountered. Several authors have described capillary spasms and strictures occurring during the period of ischemia. In severe attacks the blood becomes completely stagnant and blue. In erythromelalgia and in scleroderma, too, very bizarre capillary forms are seen. However, changes that are purely local may give rise to similar morphologic pictures, although spasms of the vessels are not observed in these cases. The most striking of these local disorders which is reflected in a picturesque and complicated capillary architecture is clubbing of the fingers, particularly in congenital heart disease. Indeed, as some observations on patients with Vaquez' disease have shown, polycythemia alone seems to determine increased filling and sinuousness of the capillaries.

Recently Mueller has described changes similar to those we have been discussing, in the stomachs of patients who were operated on for gastric ulcer, and has suggested that this disorder of the blood vessels forms a constitutional predisposition to the development of the ulcer. The patients showed similar changes in the capillaries of the skin.

In patients with hypertension the capillaries are usually long and thin, and if much arteriosclerosis exists they are likely to be convoluted and assume the shape of a figure eight or of a carpet beater. Such findings, when very well marked, are suggestive but are not sufficiently distinctive to be of much value in diagnosis. Similar changes have been described by several German authors in acute nephritis, but in my experience they are too inconstant and variable to be of much value. In long-standing heart disease, in which there have been repeated episodes of cardiac insufficiency, the venous loop of the capillaries is thick and somewhat tortuous.

The color of the skin depends on the amount of blood present in the cutaneous capillaries and in the venules of the subpapillary plexus. In my opinion the venules play the most important rôle, for one can produce blanching of the skin with light pressure while studying its vessels under the microscope, without observing any change in the degree of capillary filling. Through the method of capillaroscopy various cutaneous reactions may be studied. Thus it becomes apparent that the mottled bluish-red and white skin, so often seen in young persons, is caused by varying degrees of capillary filling of adjacent skin areas. On lightly stroking the skin of a normal person, a white line appears after a short period of latency, in the stimulated area. The local pallor of the skin is caused by a constriction of the capillaries which become emptied of their blood. More forcible stroking is followed by a red line surrounded by a white halo. In this case the strong mechanical stimulus has resulted in a dilatation of the capillaries. These phenomena give further evidence of the independent contractility and dilatability of the capillaries. Urticarial wheals are caused by an undue dilatation of the capillaries with associated edema in the area of skin affected. In the case of urticaria factitia the Rouget cells must be exceptionally sensitive to mechanical stimuli. In other cases the stimulus acting on the capillaries is of unusual severity. This local exudation of fluid associated with capillary dilatation illustrates the interesting point emphasized by Krogh that, with dilatation of the capillaries, their walls become attenuated and thus more permeable to the blood plasma. The bearing that this observation has on the phenomena of inflammation and edema is self-evident.

The method of direct observation is admirably adapted to the study of the phenomenon that ever since its description by Quinke in 1868 has been known as capillary pulsation. I have studied a large number of patients who exhibited this sign in order to determine by actual observation the vessels which are concerned in its production. While it is true that at times the capillaries may be seen to pulsate, the phenomenon is not sufficiently constant or intense to explain the clinical capillary pulse. The subpapillary arterial and venous plexuses are the chief determinants of the color of the skin, and they are chiefly responsible for the rhythmic change in its color. Lewis, by blistering the skin, has been able to observe this pulsation of the venules, and has concluded that the visible pulsation is due mainly to the activity of the venules. It might therefore be more correct to speak of the systolic flushing of the skin than of capillary pulsation.

Just as in the case of sunburn, exposure of the skin to the mercury quartz lamp, or to the roentgen-ray causes reddening of the skin with dilatation and increased filling of the capillaries. It has been shown that in the case of the roentgen erythema, the microscopic reaction occurs from six to seven days before the macroscopic erythema. Moreover, in patients with the capillary picture of the vasoneurotic diathesis the reaction is extreme and occurs with smaller dosage. It has been suggested that this fact might be used as a biological test of the susceptibility of the patient to the roentgen-ray.

The normal capillary blood pressure, as determined by the microcapillary tonometer rarely exceeds 30 mm. of mercury and most commonly ranges between 20 and 25 mm. Arteriolar constriction with consequent slowing of the blood stream will lower the capillary pressure; arteriolar dilatation will elevate it. In addition, as will be pointed out subsequently, there seem to be factors intrinsic in the capillaries themselves that affect their internal tension. In patients with acrocyanosis the capillary pressure is low—from 2 to 15 mm. of mercury. Ordinarily the capillary pressure is independent of the arterial pressure and does not fluctuate *pari passu* with it. Within wide limits the capillary pressure is independent of the venous pressure. This is well brought out in a series of patients with myocardial insufficiency, which I studied together with Dooneief. In these cases, in spite of the fact that the venous pressure, as determined by direct measurement, was distinctly elevated, the capillary pressure was normal or low. These results are of considerable theoretic interest. They afford additional evidence of the functional independence of the capillaries. They give additional support to the view so stoutly defended by Sir James Mackenzie, that peripheral stasis is not conditioned by back pressure effects, but rather by a lessened propelling force of the left ventricle. This diminished motive power of the heart results in a slowing of the blood stream, particularly in the peripheral vessels. A greater oxygen unsaturation of the capillaries ensues, which is followed by a dilatation of the capillaries. Undoubtedly the dilated capillary walls are more permeable, and at a certain stage of the process filtration edema will occur.

The study of the capillary pressure in patients with hypertension has been of the greatest interest. Hypertension is still one of the great unsolved problems of medicine, although it has been the subject of innumerable studies. We have tried to approach it from the point of view of the capillary pressure. We studied 45 patients with hypertension and found 17 with high capillary pressures and 28 with normal or low pressures. The high pressures varied from 30 to 90 mm. of mercury—truly enormous pressures for these minute vesesls. Unfortunately, these patients presented no distinctive clinical features which would enable us to group them into two classes from signs other than the capillary pressure. Neither the history, the physical examination, nor the study of kidney function revealed any differential features. Similar urinary findings were common to both groups; in both we found diminished, as well as normal phenolsulphonephthalein excretion. There was no difference in the pulse pressures in the two series. While it is true that, on the average, patients with a high capillary pressure exhibit a high diastolic pressure, there are sufficient exceptions to this rule to invalidate any supposition of a causal relationship between the two.

Four patients with high and four patients with low capillary pressure came to autopsy. No characteristic features were noted in either group of cases. They all exhibited granular kidneys of varying degree. The amount of kidney destruction was no greater in one group than in the other, nor was there any difference in the nature of the lesions or in the relative involvement of glomeruli and tubules. In one case with high pressure, the kidney, as a whole, and particularly the glomeruli, were in excellent condition. The appearance of the small blood vessels was studied, not alone in the kidney but in the other organs as well, particularly in the spleen and pancreas. In some cases the intimal thickening of the arterioles was extreme, in others moderate, but all degrees of sclerosis were found in both categories of cases.

These facts have been very disappointing, particularly in view of the attractive theory proposed by Kylin of Sweden. He too had noticed high capillary pressures in certain patients with hypertension and stated that the high pressures were found in patients with glomerular nephritis, the normal ones in patients with essential hypertension or what the Germans call "benign nephrosclerosis." He further studied 20 scarlet fever convalescents daily and found in some a marked increase in capillary pressure. In three of these patients a typical glomerular nephritis developed with albumin, casts and red cells in the urine a few days after the capillary pressure had risen. The nephritis set in when the capillary pressure had reached about 23 mm. of mercury. The highest capillary pressure obtained ranged from 40 to 55 mm. of mercury. He summarizes his studies as follows: There are two types of hypertension. The nephrosclerotic hypertension is an arterial, the glomerulonephritic, a capillary hypertension. In the first form the brachial blood pressure is much more labile than in the latter. The hypertension is not the result of the kidney disease, but the glomerulonephritis is a manifestation of a diffuse capillary injury caused by the toxins of certain acute infectious diseases.

This theory is appealing because it fits in with many known facts. Thus the view that in glomerulonephritis, the primary lesion, is a diffuse capillary injury, and that the inflammation of the renal glomeruli is but an incident in the course of the disease, is probably correct. During the war, patients were seen in whom all of the clinical signs of acute nephritis, such as edema and increased blood pressure, were present, although the urine was normal. In some of these cases the urine subsequently showed evidence of a true nephritis. The edema is explained on the basis of a diffuse capillary injury, causing an increase in their permeability. Müller and his school have claimed that the skin capillaries in these cases show a distinctive altered morphology. It would be an added link in the chain of evidence if it could be shown that a change in capillary pressure accompanied the other capillary disturbances.

Unfortunately, we have been unable to confirm Kylin's observations. As stated above, necropsy studies of four patients with high capillary pressures revealed no trace of glomerular nephritis. Moreover, in a number of cases of acute glomerular nephritis we found normal capillary pressures. Furthermore, high capillary pressures have been reported in eclampsia and in the nephritis of pregnancy.

We must, therefore, for the present, be content to record the fact and defer the explanation.

The mechanism of a low capillary pressure is easily explained. A constriction of any blood vessel will be followed by a rise of pressure central to the constriction, and by a fall of pressure peripheral thereto. In hypertension due to a contraction or a diminution of the lumen of the arterioles, the capillary pressure will be low. Thus it would seem that in most of our cases of hypertension there is a narrowing of the arterioles. A high capillary pressure will follow a dilatation of the arterioles, or a constriction of the venules. It is not clear how disease of the capillaries themselves could lead to a high capillary pressure, particularly when we recall that arteriosclerosis of itself does not lead to a high arterial pressure. It is conceivable that a lesion of the venous loop of the capillary might raise the pressure in the arterial loop, or that a stiffening of the endothelial tube due to disease might increase the pressure needed to check the blood flow in the capillaries.

The capillary pressure seems to have some prognostic value. In a period of 15 months, 8 of 17 patients with high capillary pressures died, while only 5 of 28 with low capillary pressures succumbed.

In this brief presentation, only the most important aspects of capillary physiology and pathology have been touched on. The chief aim has been to draw attention to the important rôle which the capillaries play in the varied manifestations of health and disease. We are still on the threshold of our knowledge of the pathological anatomy and physiology of the capillaries, but have learned enough to assign to them a significant part in the causation of circulatory disorders, and to encourage us to seek further light on their normal and abnormal function.

A CONSIDERATION OF FACTORS IMPORTANT IN STIMULATING AND PROMOTING HOSPITAL INTER-DEPARTMENTAL CO-OPERATION*

BY B. HENRY MASON, M.D.

First Asst. Supt., Peter Bent Brigham Hospital, Boston

THE most ideal and scientific theory that it is possible to secure in connection with any problem is like an inert substance unless motivated by practical application. It is equally true that if a perfect organization were worked out for a hospital, it could not be put into satisfactory operation by the superintendent or director without inter-departmental coöperation and support.

What factor or group of factors make for a better collective feeling of responsibility? I dare say you will all agree that there is no other one thing so important as the selection of officers and employees to fill important positions in a hospital. It is not absolutely necessary to have a large fund of knowledge in order to possess intelligence nor are training and education absolutely essential for intelligence, although they are, of course, important factors in the development of intelligence and the formation of judgments. If there is a serious defect in knowledge, there probably is also a defect in psychic capacity. As the unintelligent judge from inadequate material or superficial resemblances, we first look for men and women with a breadth of vision and practical common sense that will permit them to exhibit a spirit of cöoperation; individuals capable of instilling into the personnel of their department an interest in their work and loyalty for their institution. Such persons will appreciate that difficult problems also arise in other departments and meet in a gracious manner constructive criticism.

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A hospital administrator should thoroughly understand the employees that hold responsible positions and aid them, if possible, to understand themselves. One occasionally finds an employee like "Hannibal who swore eternal enmity against Rome," that is, inclined to go outside his own province to criticize or meddle with the duties of others, an action sure to lead to ill-feeling and often a break between individuals or departments that will seriously disturb the smooth running of the administrative machinery.

I wish especially to stress this point for it is often due to tension produced by buried or forgotten experiences brought to the surface by circumstances that arise during official duties. In this connection, permit me to devote a few moments to a consideration of certain psychological facts.

Mankind comes into the world provided with an equipment of instincts or impulses that will allow him to meet uncultured the requirements of life. As the intelligence of the child awakens or becomes broader through the constant stream of material flowing into consciousness through the medium of the special senses and the internal psychical processes, he learns to direct, control and modify the original impulses to meet the conventionalities of society.

When a change is produced in the central nervous system by some stimulus of which we are aware, we say it has registered in consciousness, thus registration is the first phase of memory. When the effect of a stimulation has reached consciousness and been stored up as a concept or memory trace, we say conservation has taken place. It thus becomes a possession for future use and the effects are brought to consciousness by the process of reproduction or recall.

Those occurrences, ideas, etc., of which a person is aware at a given moment are called conscious memory. As a result of new material constantly coming into consciousness, mental processes that a few seconds before held our attention are pushed back and replaced by new ones. Those memories of which we are not at a given time aware, but which can easily be recalled are spoken of as preconscious. And those mental tracings which cannot be recalled by the individual spontaneously but which may be lifted into consciousness by association, by hypnotism, etc., are called unconscious or subconscious.

Every idea that enters consciousness has two qualities: first, an intellectual, and second, the feeling quality or affectivity. This feeling force may undergo a change of intensity, may become displaced and attached to another idea, or float as a free affect. The affective force which accompanies experiences with a common emotional tone may accumulate and produce a tension. Ideas that are bound together by a common feeling tone or quality constitute a complex.

Human beings are inclined as far as possible to keep away from unpleasant scenes and experiences. Also ideas of an unpleasant nature may be forcibly forgotten or repressed from ready access to consciousness, but the affects which are the active qualities may result in tension that cannot be controlled and outburst of conduct peculiar or pathological will result.

The intelligent person, unless laboring under some emotional tension, knowing from experience the possibilities of deception from appearances, is careful to develop his thinking in logical ways. There are types of personalities in whom the influences of feelings are stronger than facts. Such individuals are often so strongly influenced by feelings that they feel no use of proof for their conclusions.

When conclusions are formed under the influences of strong feelings or from insufficient facts, mistakes and errors are apt to occur. And there is a very wide difference in the case with which errors of judgment are corrected. There are those who greatly resist correction or the acceptance of new ideas when these are in opposition to their own feelings or wishes.

The following case will illustrate the influence on the personality of an individual who suffered in a mild degree from an inferiority complex during childhood.

R. L., a maiden lady of 40, was born in a small rural settlement in New England of thrifty Puritanical stock. Her infancy and early childhood were not remarkable except that, when quite small, almost before she was old enough to understand the situation, her father met with financial reverses that resulted in an extensive loss of property. Through conversation and activities at that time, she developed a fear that she would lose her home, a structure she shows pride in saying was "very large" and the "show place" in that part of the country, and also experienced a sense of humiliation should such an unfortunate thing happen. As a result, there was formed a conflict in childhood which resulted in the development of an inferiority complex of the so-called social nature against which an attempt was made to compensate quite early in life by a determination that she would be self-supporting and thereby an asset to the family. Early in her 'teens, she began to shift for herself. Her success as a school teacher made her rebel against the feeling of inferiority and spurred her on to seek new fields of activity. She found employment as a telephone operator and later took up administrative work. The ever present urge to progress even though she held a satisfactory position resulted not only in her becoming an expert in her own line, but also in the development of an excessive self-assertion.

This impulse not only compensated for the inferiority complex, but there came a time when it reached such proportions that the feelings of others failed to be considered, an antagonistic attitude took their place and episodes of irritability and lack of self-control resulted. Although such a personality may have a superficial recognition of his difficulties, he is not inclined to accept any blame, but accounts for it by the errors and reactions of others in an attempt to offer somewhat of a logical explanation to vindicate himself.

The time allowed for this paper will not permit me to discuss further or give examples of tensions, anxiety attacks, and other quite common neurotic manifestations, due to past experiences or circumsances that are partly or completely forgotten.

When a superintendent discovers such a personality among his employees, he should call in the neuro-psychiatrist on the staff to consult with the employee to find if possible the basis for his difficulties and by airing them through consciousness produce marked improvement. For it is only by affording tension, produced by the accumulation of affects possessing disagreeable qualities, relief through normal channels by action, that changes or disturbances in the psychic or even physical life of the personality can be avoided. One might imagine a similar condition in the mechanical field by obstruction of the safety valve and pipes leading from a steam boiler with an increase in pressure until an explosion took place. Thus the individual can experience relief only by being aided to bring into consciousness, to live over again, buried complexes possessing strong affective force and in selected cases, also an explanation of the mechanism of the reactions. In this way, we might say the patient is desensitized to ideas with the same specific quality of feeling that formerly led to nervous tension and instability.

It has been said that he is an unusual executive who possesses the ability to foster and maintain an atmosphere of tranquility among his department heads. It seems that much is to be gained by daily conferences with the head of each department in a regular order. This offers an opportunity for the superintendent to keep continually informed about the work of the entire plant, also to help smooth out rough places that have been encountered. They should be consulted also about matters of improvement, expenses and the budget, for much valuable information can be gained in this way and the employee will be instilled with a sense of responsibility and feel that he is a more important link in the chain.

Group conferences with the heads of all departments in attendance weekly or monthly should be conducive of favorable results. With the superintendent in control of these meetings, matters of hospital interest, improvement, policy and finance could be discussed with an aim to better efficiency and joint coöperation.

In a large institution, especially state hospitals where most of the members of the administrative force live at the hospital, occasional social activities under dignified control have been found to serve as an avenue of relief from the tension of official duties and to strengthen the feeling of family interest and good will.

In this short paper I have made an attempt to answer the question asked at the beginning by calling to your attention five important factors that have to do with interdepartmental coöperation,—first, care in the selection of employees to fill important positions; second, the superintendent should understand his employees and aid them to better understand themselves; third, daily conferences with individual department heads; fourth, joint conferences with the heads of all departments in attendance; and fifth, the value of certain social activities for the members of the official family.

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AT a dinner given March 16 by Sir William Mulock, chancellor of the University of Toronto, which was attended by many representative citizens of Toronto, it was decided to give energetic support to the movement to raise $500,000 by popular subscription for the Banting Research Foundation. The Premier of Ontario, Mr. Ferguson, promised substantial support by the Province, and the Mayor, Mr. Foster, by the city of Toronto. It was further decided that the subscription books should be kept permanently open in the hope of securing a larger endowment for pure scientific and industrial research as well as medical research.—*Science.*

HOSPITAL LIBRARY SERVICE IN NEW ENGLAND

BY EDITH KATHLEEN JONES

Formerly Librarian, McLean Hospital. Now General Secretary, Division of Public Libraries, Massachusetts Department of Education, State House, Boston

His look of incredulity was funny. He had opened the door of his wife's room at the hospital in response to a knock and there stood the hospital librarian with her book truck. "Now that Mrs. —— is comfortably settled, wouldn't she like a book?" queried the librarian. "A book!" echoed the man; "Do you mean to say there is a hospital which brings books to the patients?" Then, suspiciously, "What's the charge?" "No charge and plenty of books," replied the librarian. "Well, I'll be—jiggered! This is the eighth hospital my wife has been in and the first that has had a book in it, and in most of them the nurses raised a howl if I even brought in a magazine,—didn't want the bed cluttered up. Mary," turning to his wife, with relief in his tone, "I believe you'll have a chance to get well here. They seem to have some Christian ideas."

This conversation actually took place in Lakeside Hospital, in Cleveland, but it has occurred, with variations, for many years at the Massachusetts General Hospital, where a library for patients with a librarian in charge was organized and the first of all the hospital book wagons built in 1910. This library has the four requisites for ideal service:—a comfortably furnished room with sufficient shelving, centrally located, near the elevators, to which convalescent patients, doctors, nurses and employees can come and select their own books; ward service to bed patients; a fund, small but punctual, available each month for new books selected by the librarian; and last, but extremely important, a trained, salaried librarian in charge.

Yes, we hear your emphatic remarks. "No money for fol-de-rols," you say. "Anyone can distribute books." "Why not gift books?" "Why books anyway?"

Answering your last question first, here is another scene,—from a Massachusetts hospital, but enacted, probably, a thousand times in a thousand other hospitals. The patient, a man suffering great pain, awaiting operation for several hours of agony; in hospital three weeks after the operation. The days and the nights seemed endless in their monotony. The man was too weak to see visitors but he could read. Not a readable book in the hospital! (And a new hospital, too, with the very latest and most expensive laboratories and hospital furnishings.) Every book for that patient—and he read a book a day—had to be carried in by his devoted family. They were, however, shared by other patients whose glances of wistful eagerness could not be withstood. Patients in that hospital are charged ten dollars a day and upward but no provision is made for the comfort of their minds and the memory of those immaculate but cheerless rooms, the lack of the little extra attentions which mean so much to sick people, will not soon fade from the memories of that man and his family. At a cost of less than $2000 a year the Massachusetts General provides mental pleasure and forgetfulness of pain through books for the hundreds of patients who are cared for annually in its wards.

"Why not gift books?" Because people seldom give away books they like themselves. When they clean house they send old stuff to the hospitals. Occasionally some philanthropic person buys up at a bargain a hundred books of fiction marked down to twenty-five cents each—marked down, mind you, because they were so dull no one would buy them. Such books are not worth the space they occupy. One hospital actually received three bound volumes of "The Undertaker's Manual" as a gift for the patients and the donor was much surprised that the men (it was a camp hospital) were not enthusiastic over this reading matter. Sick people want romance, adventure, cheerful and wholesome stories, new novels, recent travel and poetry and biography—the kind of books you and I like to read—and these are not the books given by the public as a rule. "All is not literature that litters" wrote a hospital librarian in passionate protest against the gift books and magazines with which she was swamped.

Gift books are acceptable only if the hospital has a librarian who can sift the good from the bad, and a fund, even if not more than ten dollars a month, for new books. The Peter Bent Brigham Hospital has been built up under these conditions.

"Why a trained librarian?" Because librarians are trained to know books and to organize libraries. Given authority and a room with shelves they can get the books out from the locked linen closets and arrange them into a library; can match up, so to speak, the patient and the book; can get the nurses and employees interested in reading better books; and, with cooperation from the head nurses, can make the junior nurses cease from abducting books from each other and from the wards and insist that each nurse shall register her books and be responsible for all books borrowed under her signature, thus materially reducing the list of missing books.

Yet it is true that volunteers can give very good service if there is someone to organize that service and see that the volunteers stick to their jobs. The Barnes Hospital in St. Louis has a well-organized and efficient group of volunteers under the supervision of the hospital librarian. The Robert Brigham Hospital, in Boston, has a devoted volunteer librarian under the social service department. She is not trained but she keeps in constant touch with people who are authorities in hospital library service.

The hospitals mentioned have what is known as the "unit plan" of service, i. e., a librarian in each hospital. To these should be added McLean Hospital in Waverley, Mass., under the same Board of Trustees as the Massachusetts General but antedating the General by some years in its organized library service and resident librarian, and Butler Hospital in Providence, R. I. Both these are private hospitals for the insane and the therapeutic value of books in mental cases has long been recognized. Book service in general hospitals is largely an outgrowth of the war work done by the American Library Association. As a direct result of this war-time demonstration the Federal Government took over the hospital libraries and librarians when the A. L. A. was obliged to relinquish their support, and today all U. S. Navy and Public Health hospitals, with the exception of the very small ones, have trained, full-time librarians, and well-selected books.

The unit plan is, without question, the ideal for large hospitals, but the expense is prohibitive for the small municipal hospitals. In these the "group plan" has proved very satisfactory.

Under the group plan the city public library combines with the various small hospitals in the city, provides a hospital librarian and lends books to the hospitals. The hospital provides the library room and shelves, the book wagon for ward service, and sometimes a small sum for new books. The hospital librarian, whose office is at the public library, arranges the permanent collection in each hospital, borrows books to augment them from the public library, visits wards, and trains in volunteer or other assistants. Sioux City, Chicago and St. Paul are pioneers in this group service.

In New England, the city libraries giving organized group servce are Bangor, Maine, and Holyoke, Mass. Quincy, whose librarian was once ill in a hospital without books, is about to institute such service. A great many public libraries,—Boston, Springfield, Worcester, New Bedford, Providence, New Haven,—to mention only a few,—are generous in lending books on request, but so far as I am aware Bangor and Holyoke are the only ones supplying systematic and sustained service.

The group plan of service also applies to the state and county hospitals and sanatoria in New England. In Maine, New Hampshire and Massachusetts the State Library Commission, or its equivalent, is allowed by state law to give advice and aid in reörganization and the selection of books; in Vermont and Connecticut the Commissions have supervisory authority also and an appropriation for the purchase of books, to be divided among all the state institutions, correctional as well as hospital.

The various state library commissions, as well as the public libraries, stand ready to help the hospitals develop adequate library service. Why not confer with them for the benefit of your hospital? You have considered all hygienic and surgical comforts in building up your hospital, why not add now the final touch—the "bequest of wings"? You know Emily Dickinson's vivid lines:

"He ate and drank the precious words,
His spirit grew robust;
He knew no more that he was poor,
Or that his frame was dust.
He danced along the dingy days,
And this bequest of wings
Was but a book. What liberty
A loosened spirit brings!"

Books are, unquestionably, a great asset in a hospital, but books on a shelf are as useless as medicine in bottles in the pharmacy. To be effective, both must be selected with care and gotten to the patient. Librarians are professional book purveyors; why not ask them to help you?

OPPORTUNITIES FOR POST-GRADUATE STUDY IN VIENNA

BY AUGUSTUS THORNDIKE, JR., M. D., BOSTON, MASS.

THIS paper is presented not as something new or unknown to the profession, but merely to point out to the readers of this journal that there are excellent opportunities for post-graduate study in Vienna today. The author's experience, although somewhat limited, was sufficient to ascertain that there is an unbelievably large amount of clinical material there and that the teaching, as done by the Viennese, in many ways excells anything this country can provide. In this progressive country of our own, we often neglect to consider that the old world still has considerable to offer us in advanced education.

The American Medical Association of Vienna fills a most useful purpose. Organized by American post-graduates and controlled by them, its main duty is to care for the interests of American students and it does this well. It is through the most valuable work of this institution that the opportunities for study, in all and any subjects, are brought before the post-graduate in a clear way. It has made contracts with all the medical departments of the University, so that, at a most reasonable price, courses may be obtained with all the men of world-wide reputation.

The medical men still in the University and teaching in 1923-1924 were the following:—(I will only mention a few)

Anatomy—Tandler.
Pathology—Erdheim, Maresch and Stoerk.
Medicine—Wenckebach, Winterberg, Eppinger, Meixner, Neumann.
Neurology—Wagner-Jauregg, Sträussler.
Surgery—Hochenegg, Eiselsberg, Pupovac, Hans Lorenz, Finsterer.
Orthopedics—Hass (In the absence of A. Lorenz).
Gynecology—Peham, Kermauner, Frankl, Weibel, Adler.
Pediatrics—Pirquet, Schick, Jehle.
Dermatology—Riehl, Kyrle, Finger.
Urology—Blum, Pleschner, Bachrach.
X-ray—Schüller, Freund.
Ophthalmology—Fuchs, Meller, Dimmer, Hanke.
Otology—Hajek, Newmann, Ruttin, Alexander, Frey, Mayer.

Those of my readers who have been to Vienna know the size of its clinics, but to me this was a complete revelation. Today there are twenty thousand beds in the hospitals and all kept constantly filled. Vienna draws patients from all over the world, even from South America, but, however, more especially from the Balkans and the near East. The out-patient clinics likewise are appalling in size and altogether the mass of material for study is unequalled elsewhere in the world. Just one month previous to the outbreak of the war a new hospital, the Kaiser Jubiläum Spital, was opened and this today is up to date in every way. Just to give you an idea of how many patients are congregated in some of these institutions I will mention that the "Landestanstalten Am Steinhof" (Insane Hospital) has four thousand beds, and that the "Home for the Aged" holds somewhere between seven and eight thousand.

From these few statistics one can perhaps imagine the mass of material that the medical profession of Vienna has to draw on for teaching purposes. The experience that they have had, together with the keen interest they show by their enthusiasm, makes the Viennese ideal teachers. I visited an Orthopedic lecture on Scoliosis in which sixty cases were demonstrated and all at different stages in the treatment; I visited a pathological lecture in which fresh specimens of bone marrow were shown typical of pernicious anemia, aplastic anemia, myelogenous leukemia and secondary anemia; and I observed in another clinic carcinomas of the cervix uteri in all stages of retrogression from radium and X-ray therapy.

It is quite impossible here to tell all that is offered in post-graduate work, but these few isolated instances of my experience may show, in a broad way, the possibilities that are open for those who desire work in Vienna.

After a stay of five weeks and a half I feel well repaid for my visit to that medical mecca. My interest being primarily along surgical and pathological lines it was impossible to obtain a complete survey of all the work. There are, however, between seventy-five and a hundred American post-graduates studying there constantly and in all lines and specialties, and after conversing with many of them, I have learned that they were as enthusiastic about the teaching in their courses as I was in mine. The specialties of the eye, ear, nose and throat are excellently given; internal medicine rather from a diagnostic than from a therapeutic point of view is well recommended; likewise pediatrics is well spoken of but the Viennese still believe raw milk more beneficial to the infant than the pasteurized; and dermatological material is extremely large and abundant and, from a diagnostic point of view, marvelous for the student. Urology, particularly cystoscopic work, is beyond conception. The number of patients and the interesting cases that are presented for diagnosis to the student is excellent.

Having given you a general survey of those subjects in which I have been least interested, I shall now devote more time and space to my own experiences. First as to the price paid and to the arrangement of a schedule. As you will presently see education is cheap, and by careful choice of subjects a great deal can be accomplished in as short a stay as five or six weeks. In addition to this schedule I found it quite necessary to take some German lessons in order to refresh my memory and vocabulary quite lost from earlier days. However, a word of encouragement to others whose knowledge of a foreign language has been lost; namely, that it comes back remarkably easily.

My schedule follows on next page.

Pathological material for teaching purposes is extremely large and broad in the field it covers. Frankl's course at the Frauen Klinik was most interesting, and inasmuch as he is the foremost man in Central Europe in his special field, he gives you a most comprehensive view of important details that were certainly overlooked when I was an undergraduate. Erdheim's courses were a most instructive review of almost forgotten pathological pictures. In the Allgemeines Krankenhaus every patient that dies is compelled by law to go under the autopsy knife, and inasmuch as it is a hospital of twelve hundred beds, the number of necropsies is necessarily large. I have seen as many as sixteen autopsies in one day and also have seen six going on all at the same time. Erdheim as professor in this institution has a mass of records and statistics unequalled elsewhere in the world. He has been in the department for twenty-two years and has either performed himself or at least supervised all of the post-mortems. As there are three thousand autopsies, on an average, each year you can estimate that his experience takes in about sixty-six thousand necropsies. His records are very well kept and hence the statistics most valuable. He is most modest and prefers to refrain from writing and putting himself in the light but is brilliant, clever and an exceedingly conscientious worker. His lectures in gross pathology with demonstrations of fresh material are very cheap, most interesting, and well worth attending for any and all who visit Vienna regardless of whether or not one is interested in pathology. They claim that Ashoff in Freiberg has not performed nearly the number of autopsies as Erdheim, yet compare the reputation of the two, merely because one of them prefers to write for Medical Literature.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8–9	Gyn. Path.	Gyn. Path.	Gyn. Path.	Gyn. Path.	Gyn. Path.	Gyn. Path.
9–10	Gyn. X-ray	Surg. Diag. and Ops.	Gyn. X-ray	Surg. Diag. and Ops.	Surg. Anat.	Surg. Anat.
10–12	Gyn. Oper.	Gyn. Oper.	Gyn. Oper.	Gyn. Oper.	Gyn. Oper.	Gyn. Oper.
12–1:30	Gyn. Diag.	Gyn. Diag.	Gyn. Diag.	Gyn. Diag.	Gyn. Diag.	Gyn. Diag.
2:15–3:45	Gross Path.	Gross Path.	Gross Path.	Gross Path.	Gross Path.	Gross Path.
4–5	Tumor Path.	Tumor Path.	Tumor Path.	Tumor Path.	Tumor Path.	Tumor Path.

Teachers	Course		No. of Hours	Cost
*Prof. O. Frankl	Gynec. Pathology		25	$18.75
* " W. Weibel	Gynec. Operations		50	—
* " W. Weibel	Gynec. Diagnosis		8	48.00 (Private)
" Erdheim	Gross Pathology		20	5.00
" Erdheim	Tumor Pathology		14	10.00
" Eiselsberg	Surg. Diag. and Operations		8	—
*Dr. Lehmann	Surg. Anat. and Operations on cadaver		15	22.00
*Prof. W. Weibel	X-ray Therapy in Gynecology		10	12.00
	Total	Hrs.	150	$115.75

*Given in English.

Gynecology, as taught by Prof. Weibel in the Rudolph Spital, is excellent. Having been assistant to Prof. Wertheim during the latter's last twenty years, he shows well the ability gained through such an experience. However, he states there are many things he does not do that Wertheim did, having learned by experience, in taking care of the latter's patients, what not to do as well as what to do. He is a pastmaster at all vaginal operations and prefers this route to laparotomy in almost all of his cases. As one might well imagine the Wertheim operation is perfect in his hands. In his diagnosis course, the material is very well chosen and there is a large amount of it that the student can practice on, learn and digest. In X-ray therapy he is far advanced as applied to the scientific treatment of cancer, sarcoma, fibroid and the functional disturbances of the ovary. He has a high tension machine, made in Frankfurt a.-m. which will produce 250,000 volts, and by means of anatomical charts and Dessauer scales he has perfected a technique which, although not yet the utmost, promises well. Professors Kermauner, Peham and Adler with the assistants Drs. Graff and Werner also present most interesting clinics with opportunities for work. However, one cannot leave Vienna with other opinions than that the vaginal route is used in preference to laparotomy perhaps because of the dangers of peritonitis. It is done well whenever done and perhaps we in America could profit more by it than by laparotomy, but perhaps not.

Anatomy at the Kaiser-Jubiläum Spital is extraordinarily fine for post-graduate work. Docent Lehmann is an excellent demonstrator and being a surgeon as well as an anatomist does not fail to stress the practical application. Cadavers are obtainable from the "Home for the Aged," fresh every day and at the reasonable expense of thirty-five cents a piece. Anatomical dissection is not limited with the exception of the hands, feet, neck and head, so that one can work or operate in almost every field. The bodies are always fresh and oftentimes still warm. Lehmann is well versed in Surgery and particularly knows the German literature, so that through him I obtained the reasons, why and wherefore, peritonitis is treated so drastically.

Surgery on the whole was quite disappointing, although to be sure this might by and large be expected on account of the terrible financial storm the country has recently weathered. When you consider that today, as both catgut and silk are too expensive, Viennese surgeons are compelled to use linen thread everywhere, perhaps you can realize the handicaps under which they work. Having seen, however, many surgical mistakes at autopsy, such as (1) apparently avoidable post-operative peritonitis, (2) the complete obstruction of a posterior gastro-enterostomy due to careless suturing, and (3) a left colectomy done for cancer of the splenic flexure with colostomy at the mid-portion of the transverse colon, where there was another cancer causing obstruction at the hepatic flexure, perhaps you can realize why I did not think the surgery excellent. This experience also raised the question in my mind, whether, if we had compulsory autopsies on all our surgical cases, we might not find more of our own mistakes. Do not think that all the surgery was of this calibre for there are many exceptions. The foremost surgeons in Vienna toiday are Eiselsberg, Finsterer, Hans Lorenz, Pupovac and Hochenegg and the type of work as done by these men is of the first order. Of course, they do not perform their work in the specialized fields, such as, brain and spinal cord and goitre, as well as our highly trained specialists, but on the whole their work is very fine.

Conclusions:—After six weeks post-graduate work in the clinics of Vienna during October and November, 1923, the author recommends this medical centre as still an excellent place in which the student, desiring advanced education, will find abundant material for study. To be sure one can expect now slightly higher costs than in 1923 but likewise general improvement in clinical environment in a recently bankrupt country.

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RURAL MEDICAL SERVICE IN MASSACHUSETTS*

SUMMARY OF A REPORT TO THE LEGISLATURE

BY GEORGE H. BIGELOW, M.D., AND F. DENNETTE ADAMS, M.D., BOSTON, MASS.

Chairman and Field Investigator, Respectively, of the Committee on Rural Medical Service of the Massachusetts Department of Public Health

DURING the past decade or more, considerable attention has been focused throughout the United States on the gradual but constant decrease in the number of physicians practicing in the country districts, and a corresponding increase in the number of small communities unable to obtain the services of resident practitioners. The conclusion has naturally been drawn that, as time goes on, the rural populace, already feeling the want of physicians, will receive increasingly inadequate medical attention unless measures are devised which will curtail the present day tendency of physicians to settle in the larger communities to the exclusion of the smaller.

That certain towns in Massachusetts have been without resident physicians has been known for some time, but authorities have differed as to the adequacy of their medical service. Goldsbury[1], investigating this subject independently, has been of the opinion for several years that certain parts of the Commonwealth are feeling the shortage of physicians—a belief not shared by the committee which investigated this problem for the Massachusetts Medical Society in 1923[2]. Because of the considerable interest in this subject the legislature at its last session passed a resolve directing the Department of Public Health to conduct an investigation into the condition of medical service in the sparsely settled districts. The Commissioner of Public Health, with the approval of the Public Health Council, appointed a committee* to carry out this investigation, and the report† has recently been submitted. The problem is of such widespread interest, particularly to the medical profession, that it has seemed worth while to present a summary of the findings and recommendations.

The resolve provided that the Department of Public Health investigate into "the adequacy and competence of health and medical service to the sparsely settled districts." The Committee found itself confronted with the problem of how the quality of professional service should be investigated, and, assuming that to investigate its quality were feasible, how to determine the standard by which adequacy and competence, in any given case, might properly be judged. It pointed out some of the factors involved in the proper handling of a given case, called attention to the difference between the ideal and the practical, and asserted that "In this maelstrom of elements, mental, physical and spiritual, one may be permitted to hesitate before passing on the adequacy and competence of the service rendered by the man in the laboratory of a research institution, or his brother in the bedroom of a wind swept isolated farm. For these reasons it seemed utterly futile to attempt any precise qualitative estimate of the rural health and medical service rendered." The study was limited to a quantitative estimate—this term being used in a broad sense to include the various adjuncts necessary to the practice of modern medicine, as hospital beds, trained nurses, laboratory and X-ray facilities, and their cost.

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*From the Department of Public Health, Commonwealth of Massachusetts.

*The committee was composed of: George H. Bigelow, Warren C. Jewett, Sylvester E. Ryan, Charles W. Milliken and Harold E. Miner.

†House No. 1075, January, 1925.

The investigation was carried out along the following lines: First, a review of the literature, with a view toward obtaining information concerning conditions elsewhere, their possible causes and suggestions and plans for their betterment; second, publication of letters in the lay press calling attention to the investigation and requesting information and suggestions from interested persons; third, collection of certain statistical data from medical directories, death certificates, etc., which might have direct or indirect bearing on the subject; and fourth, surveys of a certain number of towns by personal investigation, and of others by questionnaires sent to representative citizens.

THE LITERATURE

The facts brought out by review of the literature can be briefly summarized as follows:

1. The proportion of physicians to the population is much larger in cities of the United States than in the town and country districts, the ratio in general being approximately 2 to 1.
2. Investigators in other states have found that there is need for physicians in many of the smaller communities.
3. In certain districts, the number of physicians in the rural areas is decreasing out of proportion to decrease in population.
4. Other writers believe that, although the number of physicians per person is decreasing, the loss of service is more than counteracted by improved methods of transportation and communication.
5. The chief reasons for the migration of physicians from the country to the cities are:
   a. The greater income obtainable by physicians in the city.
   b. The physical hardships of country practice.
   c. The desire of the modern medical graduate to be near a medical center and have within his reach the hospital and laboratory facilities.
   d. The tendency of many rural or small town inhabitants to seek medical attention in nearby cities, and thus fail in their support of the local physicians.
   e. The decrease in the number of small medical schools, situated outside the larger centers.

LETTER TO THE PRESS

In order that the investigation might be as inclusive as possible, the Committee sent to the newspapers throughout the Commonwealth an open letter requesting information concerning medical conditions in the various communities, and any suggestions for improvements. The twelve replies received brought out nothing new.

STATISTICAL DATA

Figures for the distribution of population and physicians within the state for years 1916 and 1923 were obtained. These showed that although the population in towns under 2,500 had decreased during the eight year period 3.4%, the physicians had decreased 29.6 percent. On the other hand the total population of the state had increased 1.8 percent. Original death certificates were consulted to find, in communities with resident physicians, the proportion of certificates signed by nonresident physicians. There was a definite increase in this figure in the units of smaller population. Assuming that similar ratios obtained in the case of the sick, this would bear out the assertion that residents of smaller towns give less support to their resident physicians.

It was felt that the rural physician might be more inclined to use an "open" than a "closed" staff hospital. But of the twenty-six institutions from which data were obtained, 26 percent of the patients were from out of town in "closed" hospitals and 27 in the "open." Of the nineteen towns which showed the most definite evidence of the lack of available physician's services, none had a high school, and sixteen were among those giving their school teachers the lowest average wages. Is it possible that the same factors which prevent higher salaries to teachers prevent living incomes for the resident physicians?

SURVEY OF TOWNS

The most important features of the study were the personal investigation and the questionnaires. Personal investigations were of necessity limited to those sections of the Commonwealth in which it was thought that the problem would be most apt to exist, and the questionnaires were sent to other sections where, if a problem were present, it would at least be less acute.

In the western third of the state, including the counties of Hampden, Hampshire, Franklin and Berkshire, the field agent of the Committee visited all but three towns which have no resident doctor and a considerable number of those upon which these towns depend for their medical service. The three towns not visited were, however, studied by a member of the Committee. In Worcester county, seven towns were visited by the field agent and six were covered by questionnaires. Of these latter, three were also visited by the District Health Officer. In the district composed of the counties of Barnstable, Dukes, Nantucket, most of Bristol and part of Plymouth questionnaires were sent to representative citizens of all towns having a population less than 2,500 and to all physicians residing therein. In addition, Dukes County, comprising the towns on the island of Martha's Vineyard, and the Elizabeth Islands (Town of

Gosnold) were visited by the field agent. Questionnaires were also sent to a few towns in Norfolk, Essex and Middlesex Counties. These towns were selected by respective District Health Officers as being those in which inadequate medical service would be most likely to be found, although as all of them are situated in what is rather the industrial than the rural section of the Commonwealth, it was considered quite unlikely that conditions would be reported as unsatisfactory.

The questionnaires sent out were of two types—those for laymen and those for physicians. Each physician was asked as to the extent of the territory he served, his own ideas of the adequacy of dental, nursing and hospital service and his opinion regarding the advantages and disadvantages attendant upon the practice of medicine in the community which he was serving.

County	No. of towns studied	No. with nearest M.D. over 6 miles distant but within 10 miles	Population affected	No. with M.D. over 10 miles away	Population affected	No. with av. home visit chg. over $5.00	Population affected	No. with nearest dentist over 20 miles distant	No. with nearest hospital over 20 miles distant	Population affected
Barnstable	11	—	—	—	—	—	—	—	3	1,636
Bristol	6	—	—	—	—	—	—	—	—	—
Plymouth	10	—	—	—	—	—	—	—	—	—
Essex	7	—	—	—	—	—	—	—	—	—
Middlesex	1	—	—	—	—	—	—	—	—	—
Norfolk	3	—	—	—	—	—	—	—	—	—
Dukes	7	1	295	3	463	2	248	—	—	—
Worcester	12	1	799	—	—	1	499	—	—	—
Hampden	9	2	593	—	—	3	822	—	—	—
Hampshire	13	1	505	—	—	1	299	1	1	310
Franklin	19	4	1,276	—	—	3	982	1	3	852
Berkshire	20	4	1,872	2	579	7	2,512	—	1	319
Total	118	13	5,340	5	1,042	17	5,362	2	8	*3,117

*1,481 without the three towns in Barnstable County.

The facts obtained by means of the surveys and the questionnaires were presented in a series of tables designed to show cost and availability of each type of service in each town, and where indicated facts brought out were discussed at considerable length. In this article space does not permit publication of the charts or the accompanying detailed discussion.

The analysis of them shows that, during the course of the study, "118 of the 191 towns in Masachusetts having populations of less than 2,500 have been investigated. * * * Seventy-eight of them have been personally visited by a representative of the committee, while the facts concerning the remainder have been determined by mailed questionnaires, supplemented in a number of instances by information obtained by personal investigation.

"The table has been devised to show the number of persons who, on a mileage basis (and in the case of physicians' services, cost basis as well), might be considered not adequately provided for with respect to one or more branches of medical attention. The number is surprisingly small. Of the 118 towns investigated, only 18 are more than 6 miles from a physician and 5 more than 10 miles away. The total number of persons so handicapped is 6,382, of which number only a few over a thousand reside more than 10 miles from a physician. The average charge for a house visit is more than five dollars in 17 towns, 5,362 persons being subjected to the higher rates. Only two towns are more than 20 miles from a source of dental service and only 8 are more than 20 miles from a hospital. Three of the latter are at the end of Cape Cod and are not so badly handicapped as the figures would indicate because of the fact that excellent state highways and a railroad connect them with the nearest hospital town. The total population of the other 5 towns located more than 20 miles from hospital facilitie is 1,481. When one takes into consideration the fact that there are almost four million persons in the Commonwealth, and that less than six thousand of them are more than 6 miles from a physician and only a few over three thousand more than 20 miles from a hospital, one can but draw the conclusions that, at least on the basis of figures, Massachusetts is relatively not wanting in the basic elements which make up medical service. The data may be summarized under four headings according to the source of this service, i. e., the doctor, the hospital, the nurse and the dentist.

"1. The Doctor.—There is a relatively small number of towns in the Commonwealth in which conditions, measured according to popular standards, are not satisfactory with regard to the availability of physicians' services. These towns are: Gay Head, Gosnold, Pelham, Prescott, Westhampton, Worthington, Blandford, Montgomery, Tolland, Florida, Savoy, New Ashford, Sandisfield, Hawley, Heath, Rowe, Shutesbury, Warwick, Wendell. All but three of them, Gay Head, Gosnold (both islands) and New Ashford, are mountain or hill towns, twelve of them being situated in the Hoosac Range. The causes of dissatisfaction on the part of the residents of these towns are first, inability to secure the services of a physician when needed, particularly in winter, and secondly, the cost of having a physician attend a patient in the home. It is only fair to repeat what has been brought out previously, namely, that the inhabitants of these towns do not, in most instances, think the physicians' charges unreasonable, but complain that the cost of medical service is often greater than they can afford to pay. If each town had its own resident physician, neither of these conditions would exist.

"The Committee desires to reiterate that the above list of towns includes the only ones that were definitely felt to be inadequately served medically in the sense in which this service is estimated by laymen, i. e., largely in terms of time before the doctor arrives. Because of the difficulties incident to an estimate of medical quality, the average man is more satisfied with the arrival of a less competent doctor in fifteen minutes than if he has to wait four hours for a more competent physician. Yet it is obvious that, in the vast majority of instances, the result in the latter case will be far better. When quality and medical aids to service are taken into consideration, one would hesitate to say how many, even in the large cities, receive qualitatively adequate service, but this is beyond the limits for this study.

"It is the opinion of the Committee that generally speaking the demands by the country folk on their physicians are far more exacting than those made by patients on urban doctors. This attitude is comparable to that of urban dwellers toward a taxicab, or the telephone repair man. He is a public utility, who should be at the beck and call of every citizen, ready to respond to every call no matter how unreasonable some might be. He should respond like taxicabs to calls in inclement weather, but sit idle at other times, while the patients flock to the nearest center, even as taxicab patrons walk or use their own cars when the weather is fair. One is told of old Dr. So and So, the family physician of two decades ago, who never missed a call for thirty years, and charged a dollar a visit, with the inevitable medicine 'thrown in.' One hears of the kindliness and the humane qualities of the past generation as opposed to the commercialism of today. 'The doctor now thinks only of his fee.' 'The doctor now charges three dollars; our last doctor charged one.' These people seem totally unaware of the fact that as the cost of living increases, so also must the cost of medical attention if the physician is to continue to practice his profession without also running a store and doing odd electrical jobs to keep body and soul together, as in one instance. They seem unable to perceive that since the physician's overhead is many fold that of his predecessor his income must necessarily be higher. There is danger lest they confuse with kindliness the economic shiftlessness of the older generation, and with commercialism, the more businesslike methods of the professional man of today. They decry the doctor's lack of consideration of the patient, the while forgetting the patient's lack of consideration for the doctor. A man taken sick at noon will put in his first call for a physician at two in the morning. He will judge of the doctor's efficiency by the rapidity of the response, and if he thinks the doctor has been slow in coming will take pains to spread his opinion throughout the town. A man had an infected hand for three days. At four in the morning he called the nearest physician. The physician gave him instruction by telephone for temporary relief, and visited the patient at 9 o'clock. Immediately thereafter the patient changed physicians, giving as the reason for his dissatisfaction the failure of the doctor to respond more quickly. A physician in western Massachusetts recites the following episode: He was called one winter night during a severe blizzard to attend a woman in a town 8 miles away. She was suffering from ear-ache. He suggested that his visit be postponed until morning, but the patient's family insisted that he start at once. He then suggested that the head of the family drive half way to meet him. The answer was, 'Heavens no, I cannot even get to my front gate.' Another physician tells of a patient whom he reprimanded for calling him at midnight to prescribe for a simple ailment. The reply was, 'I thought I could get you cheaper at night. You aren't so busy as in the daytime.' In one relatively large community, in Hampshire County, the five or six physicians practicing there agreed to charge double fees for services after 9 P. M. Within three months their calls after this hour had diminished 75 per cent.

"It is a common complaint among the laity that physicians are 'too independent.' This assertion was made to the investigator innumerable times. In one instance he stopped to interview a house painter while at work. This man gave as evidence of medical independence that he tried three doctors recently before he could get one to come to his wife. On being pressed, he said his wife had been sick three days, and that he first tried to secure medical aid at midnight. The nearest physician lived five miles away. With no mean show of emotion he said that there should be a law to make doctors respond to all calls, though he felt such a law for house painters would be out of place. The difference he felt was that the doctor was a public servant, since he was licensed by the state. This attitude on the part of no small proportion of the public is one of the factors which makes the rural physician discontented with his lot.

"The members of this Committee believe that the average rural physician is a man of upright character, of integrity, industry and charity serving the people to the best of his ability, and upholding the best traditions of the medical profession. When the public awakens to the realization of the fact that the physician is not a public utility, that he must be treated with fairness and consideration, that he must charge and receive adequate fees for his services, that the practice of medicine must be on a business basis, in that the doctor like other laborers, is worthy of his hire, and that the physician must be allowed his share of rest and recreation, then, at least, one important phase of his problem will be solved. Towns now calling for physicians will continue to be without them until their citizens appreciate that the local physician must have the bulk of the local work, and cannot be used only for the occasional emergency. Were physicians to settle in certain of these towns today, in the opinion of many well-informed persons, the majority of citizens would continue to patronize men in other localities.

"However, in the final analysis it is the belief of this Committee, despite the factors just reviewed, that the problem is primarily economic. In most of the towns named above money is scarce. Financially the inhabitants are hard pressed. Many are in the economic status which in the city would patronize the dispensary, or requiring hospital care would occupy a free or pay ward bed and pay nothing for the physician's services. In the country such institutions do not exist. The patient has no choice other than to pay for a private physician or be listed as a pauper. Be it said to the credit of the citizen of rural Massachusetts that even in straitened circumstances he invariably chooses the former alternative, a course which though admirable does not materially help pay the rent of the physician 6 miles distant, who makes a daily trip to attend him. These people, relatively few as shown by the Table, are unfortunately situated. One finds physicians where it is possible for physicians to be self-supporting. Where this is impossible or questionable, one does not find physicians. One cannot legislate money into a town; one cannot legislate a physician into a town, and hold him there if he cannot earn a living; or given a physician in a town, one cannot legislate the patients to his office.

"2. The Hospital.—Hospital beds are available to all the inhabitants of rural Massachusetts. Ward and room rates are not excessive, being often less than cost. There is, however, great divergence in the matter of rates, and in not a few instances they must be an inhibiting factor in the free use of the hospital. Except in one or two instances, there are sufficient beds to meet the present demand. Dispensary service is not as accessible to the rural citizens, and has not reached the state of development in the smaller hospitals that it has in the large city institutions. Thorough clinical and laboratory investigation of the obscure case, often requiring expensive apparatus and the service of full-time workers, is more readily obtainable in the larger urban institutions than in their counterpart in the small town.

"The hospitals should, however, became large factors in the life of the community through expanded service and community education as to use of such services. Many laymen still feel that the principal functions of a hospital are to furnish service in cases of accident and surgical emergency, and in all other cases to provide a place to die decently. Doctors should be encouraged to bring to the hospital their selected cases presenting some unusual difficulty, particularly while still ambulatory, where consultation and special examinations can be made. Such extension of service benefits the doctor through medical contacts; the hospital through increased income; the patient through better service; and the community through its increased support of the hospital which comes with better understanding. In general the better a community supports its hospital the better will be its return in quality of service.

"3. The Nurse.—School nurses are employed in all but a few towns, visiting nurses in 65 towns. Private nurses are usually available in the sense that the town is situated at a not unreasonable distance from some center where private trained nurses can be secured. The cost for a trained nurse thoughout the state varies from $30 to $45 per week, a figure quite beyond the reach of the average rural families as well as many living in the cities. It was found that the trained nursing service is being supplemented to a considerable extent by the service of the so-called 'practical nurse.' This term is applied to an ill-defined group that goes all the way from the neighbor's wife who comes in merely to cook during the illness of the person who previously carried on this function in the household, and who administers in no way to the patient, to the woman who had a few months of training in a hospital. On inquiry the country physicians not infrequently said they preferred the practical nurse who would follow orders to the trained nurse who, because of her knowledge, feels herself infallible and takes the treatment of the patient in her own hands. Were the condition as stated, the above decision is undoubtedly wise. On the other hand there is the possible dilemma in which the conscientious competent nurse finds herself under the direction of the less conscientious or less capable physician. In a given instance it was, of course, impossible to decide from a brief interview which of the above situations existed. On the other hand one met frequently the now familiar cry as to the shortage of nurses, even at prohibitive wages. Whether these conditions can best be met by lowering the present standards of the registered nurse, or by licensing a less skilled group or groups of women for ministration to the more common ills, where requirements of nursing technique are not essential, does not come within the province of this report. A recess committee of the legislature is at present considering this matter, among others, and its report will be awaited with much interest.

"4. The Dentist.—Dental service is reasonably accessible to all rural inhabitants and so far as can be judged is not charged for at unreasonable rates. However, it is to be doubted whether a large part of the rural population have passed beyond the point where dental expenditure is considered only in the presence of dental pain. This is perhaps not surprising since a visit to the dentist when the teeth are comfortable requires much the same attitude that is required before a supposedly well individual will submit to the manipulation and expense of the so-called 'health examination.' The changed attitude toward these things will come but one would certainly not expect to find it first in the smallest communities. Such a venture as the Hampshire County Travelling Dental Clinic should inculcate into the minds of the coming generation in that part of the state a very practical idea of the value of sound teeth and how to keep them which should be of mutual profit to the community and the dental profession."

The last part of the report consists of a discussion of the numerous and varied suggestions which have been brought forward as possible solutions of the problem. It is quite obvious that any attempt to put rural medicine on the same plane with urban medicine would necessitate changes in the economic and social structure of the state, quite beyond the range of possibility. From various sources, however, the Committee obtained plans for the betterment of conditions and the advantages and disadvantages of each were considered. In many instances there was evidence of a lack of appreciation, particularly among laymen, of the fact that, as Safford[8] has said, 'The problem of bringing about satisfactory rural medical care involves something more than devising new ways for a physician to give personal service to the public."

In a general way, the various plans grouped themselves under nine heads as follows: 1. Subsidy. 2. Hospitals. 3. Medical Education. 4. Medical Clearing House. 5. Public Health Nurses. 6. Legislation. 7. Community Support. 8. Government Supervision. 9. Better rural living conditions.

SUBSIDY

The various forms of subsidy are listed by the Committee as follows:

"A. The doctor to be in the community all the year round and the subsidy to be paid by—

1. The town (a) for a resident physician, (b) for a non-resident physician, to hold regular office hours in the town and base his fees on distance from the latter office.
2. The County.
3. The State.
4. Private individuals or organizations.

"B. The doctor to be in the community only during the winter months. This may be subdivided as under A.

"Perhaps the most inclusive criticism of all forms of subsidy is that they constitute 'state medicine.' This is a term frequently heard today, particularly in medical circles, but there appears to be much confusion as to precisely what it means. For the sake of clarifying the discussion here, the Committee offers a definition of the term as it will be used in this report. 'State medicine' is medical service to the individual at the expense of the community. Accepting this definition, it becomes at once apparent that all free dispensaries, or those where the fee does not cover the entire cost of service, as well as any other institution or individuals giving medical service at less than cost are furnishing state medicine. It would be absurd to suggest closing the out-patient department of the Boston City Hospital on these grounds, since this particular type of service has become dignified by time and represents many of those principles which constitute the finest heritage of the profession. In the opinion of the Committee it is not the rendering of state medicine, per se, which is objectionable, but it is that to date no wholesale method of rendering such service has been devised under which quality of service will be maintained. Could every physician be assured of a living wage, and be thereby relieved of all financial stress and strain which often impairs his usefulness, without at the same time blighting individual initiative which is prerequisite to a high quality of service, it would be an enormous advantage. But no such method has come to the attention of the Committee.

"In regard to the individual subsidy a sharp distinction should be drawn between a subsidy which covers, without additional fee, medical service to the community, and one which aims to place a doctor within reach so that individuals may buy, at additional fee, whatever service may be indicated. The first is objectionable since it puts a premium on the rendering of as indifferent a service as is compatible with the maintenance of the subsidy. The latter is not open to the same objection. Whenever subsidy has been suggested it is in the latter less objectionable sense. It therefore seems particularly unfortunate that the President[4] of the American Medical Association should still further confuse this intricate question by wholesale condemnation of subsidy, without making the very important distinction just mentioned. He states that 'there is no justification for a satisfied attitude, when the best solution the council can offer for rural medical service is state medicine, which it is suggesting, year after year; I have in mind here, the recommendation of having communities subsidize or employ physicians.'

"Another general criticism of subsidy is that no self-respecting physician will accept it. The best answer to this is that there are at present self-respecting doctors in the state accepting such subsidy."

The plan of having the physician in the town during the winter months—when the conditions of travel make it harder for its inhabitants to reach other communities, is scouted by the report as being impractical primarily because of the fact that the citizens of a town would not patronize a physician coming into their midst under such circumstances.

If the State is to pay subsidy some supervision must be maintained which might be a cause of local irritation, and would introduce administrative difficulties. Also, this would be a poor investment for the State since decreasing population in subsidized areas would necessitate increased state expenditure to maintain a constant quality of service.

HOSPITALS

A considerable number of persons believe that the solution of the problem lies in some type of hospitalization of rural communities. Some advocate elaborate state or county operated hospitals, others state or county operated diagnostic clinical and X-ray laboratories, and others the establishment of small clinical stations to which the patients should come for treatment, including bed care if necessary. The report of the Committee concedes that in many states the establishment of more hospitals is undoubtedly needed, but so far as this State is concerned, it concludes that no such want exists. There is, however, room for improvement in the service which many of these hospitals offer and efforts should be made to increase the diagnostic facilities of many smaller hospitals while, on the other hand, attempts are being made to educate the people to their proper use. This would do much to raise the level of medical service, would further contact between physicians and would serve well the patient in need of the best that the profession has to offer locally.

After a discussion of the advantages and disadvantages of the "open" and "closed" hospitals, the Committee reaches the conclusion that the greatest need of the "open" hospital is some method of supervision of the medical work which will insure a generally high quality of service. Given this, the "open" hospital serves the country communities better than the "closed" hospital since it is a potent factor in raising the level of service given by all the doctors that it serves. One finds no statement concerning the means by which adequate supervision of the standard of work can best be obtained in the "open" hospital.

MEDICAL EDUCATION

In view of the changes that have been made in the methods of medical education in this country within the past twenty years, and the constant raising of standards by schools and boards of licensure, it is natural that such alterations should be blamed for the present situation and that various plans for further alteration of medical curricula and requirements for license to practice should be demanded. One finds all grades, from the plan by which every man should be trained for a specialty to that which provides that no specialty be taught in medical schools.

"One prominent man proposed to the Committee that three grades of degree be given: (a) for those who shall be set aside to advance knowledge, who may take a course of the present length; (b) a slightly shorter course than at present to fit for city practice; and (c) a considerably curtailed course giving only those fundamentals which are needed to practice in the country. Contrast with this Walter's[5] emphatic statement that it is not sub-standard but super-standard doctors that are needed in the country and that this feeling that any second-rate man can make 'a go of it,' if the community is sufficiently rural, may actually keep good doctors away lest they be so classified.

"The lowering of medical standards was endorsed in a letter signed by citizens of three small towns in the western part of the state, all without resident physicians, and addressed to the Recess Committee of the Legislature which is considering a variety of subjects connected with registration, as well as to this committee. They ask that specific legislation directed towards shortening the medical course be recommended so that doctors may be available for their towns and that these doctors, when obtained, will not overcharge. It has, unfortunately, never been established that any fixed ratio exists between the fee charged and the quality of the service given. Again, the thesis that cheaper medical education is concomitant with more doctors in the country would seem to be open to question since Lyon[6], in his study in Minnesota, found no instance of a community having a chiropractor but no doctor. Certainly from all available information the cost of the chiropractor's training is cheap compared with the doctor's. Why then do we not find them filling the gap in the small Minnesota towns? One possible explanation is that in general, although fortunately there are exceptions, medical and business ability occur in inverse proportions. By shortening the medical course we might conceivably increase without limit the incompetent doctors in our large communities, while leaving the situation in our small places unaltered. * * *

"Worthy of studious consideration is the proposition advocated by numerous writers, among them Frontz[7], Nicoll et al[8], and others, that every medical graduate be required by law to engage in general practice for a specified number of years. This it is claimed would insure a steady supply of competent general practitioners and competition would be such that a certain number of them would migrate into the outlying districts. Presumably, too, many of these once established would be content to remain, whereas had they never been forced into general work they would have stayed in the cities and become specialists. Nicoll and his committee advocate further that after serving the specified number of years as general practitioners graduates serious of becoming specialists should be required to engage in special courses of study under stipulated conditions. Such a plan, they believe, would 'increase the number of general practitioners; enforce upon intending specialists a knowledge of general medicine; and eliminate the pseudo-specialists.'

"The disadvantages of this procedure are, first, that men intending to go into specialties, irked at the necessity of spending several years in general work, possibly in temporary locations, would render less satisfactory service (a reflection of the old adage that one can 'lead a horse to water but cannot make him drink'), and, secondly, that the public, realizing this fact and with an inbred association between youth and medical inefficiency, would not seek the services of these young graduates who might lose heart as well as time during this enforced apprenticeship.

"Nicoll[8] and his committee also advocate the establishment of the 'smaller and well-conducted medical schools' on the ground that these schools situated outside of large cities are important factors in supplying the rural districts with physicians. Using the Albany Medical School as an example, they show that of its 1,700 graduates only 174 have settled in and about the metropolitan districts and that more than one-third have settled in communities of 10,000 population or less. They conclude that the tendency of graduates of smaller schools to settle in smaller communities is 'of such vital importance to the solution of the rural district medical problem that such schools throughout the country, if for no other reason, should be fostered and encouraged and their financial difficulties met in every possible way, provided that they are or may be equipped to turn out physicians who are qualified in the fundamentals of medical practice, even though they may not have had the opportunity to make such a thorough study of the various specialties as is offered at many of the large medical institutions.' In Massachusetts there are at present five medical schools. There is hardly need or room for more. * * * *

"A very vital part of medical education commences only with the beginning of practice. The conventional aids to this are informal contacts with fellow-practitioners, medical society meetings, medical literature and post-graduate courses. All of these are less accessible to the country than to the city physician, with the exception of the journals to which he may subscribe. But it is the unusual man who, isolated from professional stimuli, can maintain more than sporadic interest in the uninterrupted product of the professional press."

The State Medical Society through its lectures and the universities through extension work such as that in North Carolina, described by Adams[9], may bring post-graduate work most economically to their physicians.

MEDICAL CLEARING HOUSE

The many difficulties incident to such a service were indicated. If thought worth while it might be conducted by a state department, the State Medical Society, or a private agency.

PUBLIC HEALTH NURSES

Opinions as to the relation of the public health nurse to the problem varied all the way from those holding that she should be eliminated, to those advising a considerable increase in her numbers and the range of her activities.

The Committee believes that these conflicting points of view can be harmonized if in each section of the state representatives of the local medical society and the local nursing organization consider their particular local needs, and their available resources. Let them assign a definite field of activity to the public health nurse, and let the public, the doctors and the nurses be informed of this decision. This has been done successfully elsewhere in the country.

LEGISLATION

The forms of legislation that have been proposed were considered under the following heads:

(a) An appropriation for state subsidy.
(b) An appropriation for hospitals and community centers.
(c) Creation of and appropriation for a medical clearing house.
(d) Appropriations for scholarships in existing medical schools.
(e) Centralized authority to dictate where physicians shall locate.
(f) Modifications in medical education and licensure.

Any benefit, which in the opinion of the committee is contained in any of the above, can be obtained at present. No legislation therefore was recommended.

COMMUNITY SUPPORT

The report emphasizes the responsibility which a community must feel for the support of its resident physician though it in no sense wishes to be understood as urging the indiscriminate patronage of the incompetent physician.

GOVERNMENTAL SUPERVISION

Any method of governmental supervision yet proposed meets the insuperable obstacle of discouraging initiative which is essential to sustained quality and future progress.

BETTER RURAL LIVING CONDITIONS

Any factor which makes life in the community less arduous and more profitable will, just in so far, tend to solve their problem.

The Committee sums up its findings in the following conclusions:

"1. Because of the complexity and present cost of adequate modern medical service there are probably few who obtain it in the cities and certainly few who obtain it in the country.

"2. There were nineteen small towns in Massachusetts in which a doctor was not reasonably available. This number would be increased by unusual conditions of weather or prevalence of disease.

"3. A sharp distinction should be made between a subsidy to a physician which covers any medical service that he may render and one which is paid so that a doctor will be available from whom service, as indicated, may be obtained at current rates. The latter is not open to the objection of tending to lower quality of service by discouraging individual initiative It should most properly be paid by the community involved to a resident physician or for regular local office hours by a non-resident physician. This latter method is of immediate practical value to communities unable to support a resident doctor.

"4. The general need at present is for better rather than more hospitals. In certain existing institutions more beds are needed and this condition will increase as the public is more fully educated to the proper use of the hospital. Expansion of capacity and extension of service should be supported by the communities served.

"5. There is reason to feel that the 'open' staff hospital serves the rural community better than the 'closed' staff hospital provided there is adequate supervision which means the establishing and maintaining of a high minimum standard of service. The 'open' staff hospital would seem to be the most potent single factor in elevating the general level of local medical service.

"6. Hospitals may increase their usefulness to rural communities by establishing special clinics where doctors may bring or send their patients. Thus for a selected group consultation, X-ray, laboratory and other complex diagnostic facilities will become available. It might be well for this service to include more complex treatment such as X-ray, hydrotherapy, electrotherapy, etc. The fees for this service should vary according to the means of the patient since many can afford general practitioners' fees who cannot pay the current rate for complex laboratory and consultative service. By these clinics the patient, the doctor, the hospital and the community will be benefited.

"7. Where the activities of the public health nurse reduce medical practice it is evidence, per se, of a failure of the medical and nursing profession to work out policies and methods of nursing service in such a way as to give due consideration to professional interests and at the same time give the best possible service to the community. In such communities representatives of the local medical and nursing professions should decide between them what are the proper fields of activity of the public health nurse in the given locality.

"8. Community effort should be directed towards educating the public as to the proper use of the physician. Once one has been obtained there should be a sense of responsibility for his support.

"9. Aids to the rural physician in keeping abreast of the times, in addition to current medical literature and post-graduate courses, are:

a. The special clinics where physicians may meet with other doctors.
b. Utilization and extension by the local medical societies of the speakers furnished by the Massachusetts Medical Society.
c. University extension work.
d. The State Department of Public Health through lectures, demonstrations and printed matter.

"10. A medical clearing house to which doctors in want of a community and communities in want of a doctor may come would seem to be of service in spite of all the difficulties attendant on such service as already mentioned. This might be handled through a State agency, such as the Department of Public Health, or a private agency such as the Massachusetts Medical Society.

"11. The committee does not feel that any method yet proposed of lowering standards of medical education would give reasonable promise of materially improving the quantity or quality of rural medical service and might impair both.

"12. Any method of improving social, economic, educational or recreational facilities to the rural community would increase the comfort and satisfaction of the rural physicians and thereby aid in solving this problem."

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SURGICAL INDICATIONS ARISING DURING THE MEDICAL MANAGEMENT OF GASTRIC ULCER

BY SARA M. JORDAN, M.D.

Gastro-Enterologist to The Lahey Clinic

THERE is no question, today, but that the healing of gastric ulcer may take place successfully under medical management, based upon neutralization of free hydrochloric acid. Medical success is dependent, however, primarily upon an accurate diagnosis of the condition and the exclusion of those cases not definitely ulcer, and secondarily upon the substitution of surgical for medical treatment whenever surgical indications arise during medical management.

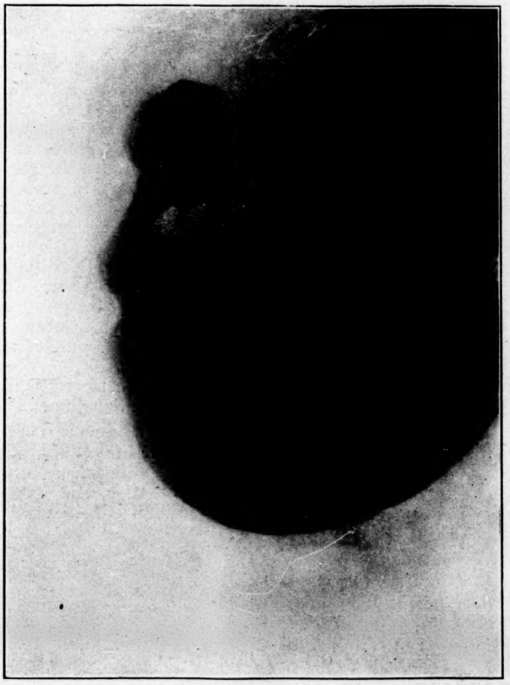


FIG. 1. Hour-glass deformity produced by healing ulcer of stomach.

The two emergencies which threaten life in the cases not under treatment, namely, massive hemorrhage and perforation, do not ordinarily occur in the cases under strict management. Less striking occurrences do, however, change the clinical picture to such an extent that it becomes unfair to the patient to continue medical management in spite of relief of symptoms. It is highly desirable, of course, to detect such conditions as early as possible in order to prevent waste of time and of opportunity for favorable results from surgery. Two such conditions arise in connection with the treatment itself, (1) the failure to neutralize acidity because of excessive continued night secretion, and (2) an alkalosis due to excessive absorption of alkalies. Two other conditions occur as the result of the malignant nature of the lesion, namely, the recurrence or persistence of occult blood in the stools and the lack of improvement in the X-ray appearance of the defect. All four conditions may be detected in the first four weeks of hospital management or in subsequent check-up observations.

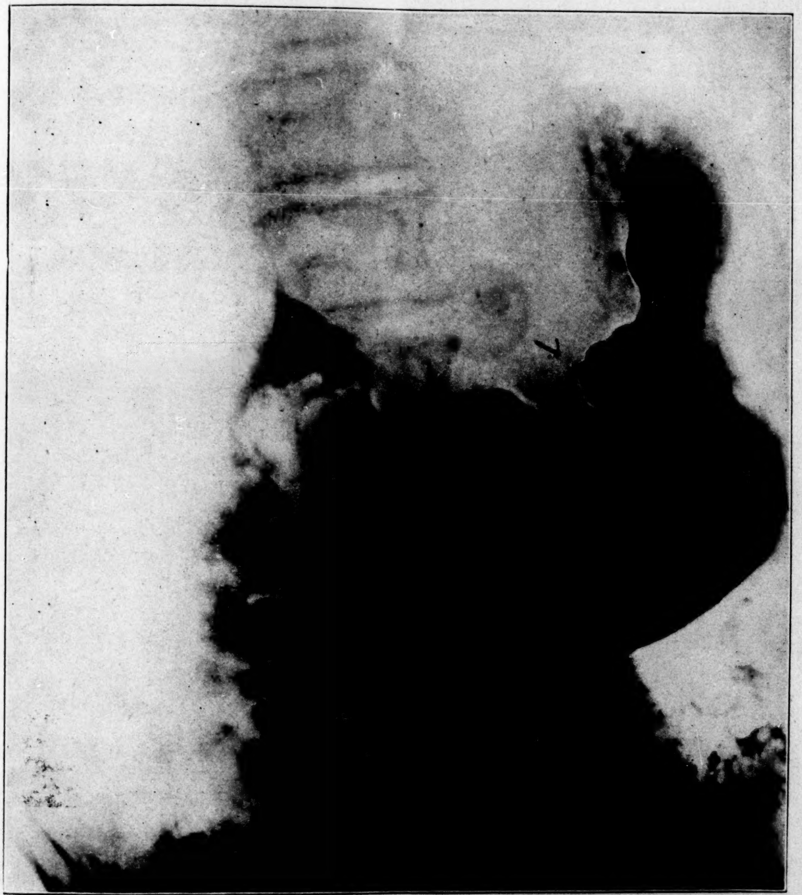


FIG. 2. Large niche of gastric ulcer before beginning of treatment in case of 81-year-old man

The first mentioned condition, the excessive continued night secretion of free HCl, may be detected either by symptoms of distress during the night or by a more reliable method, the aspirations and analysis of gastric contents at 9:30 P M. and at midnight. If, after the stomach is emptied at 9:30 P. M., an aspiration at midnight reveals large quantities of free HCl, it is evident that there is a continued excessive secretion which nullifies the results of neutralization during the day. Rarely, however, does medical management need replacement by surgery for this reason alone, inasmuch as careful 24-hour neutralization usually changes the situation within a few days.

The condition mentioned second, akalosis, is likewise rare. When estimations of the CO_2 combining power of the blood are made once a week during the early management, a temporary reduction in the quantity of alkalies used may be made if the combining power rises above 70. Such a reduction is practically always effective in reducing the combining power and has no deleterious effect upon neutralization. Only one case has been seen by us in which operation was advised because of the occurrence of headache, oedema and the presence of hyaline casts in the urine, with a CO_2 combining power of 72, all of which symptoms were unrelieved by a reduction in the quantity of alkali.

The persistence or recurrence of occult blood in the stools after two weeks' management is to be suspected of originating from an old calloused ulcer with a protruding blood vessel with no possibility for healing, or from malignancy, and if unexplained by mouth or rectal bleeding should always be regarded as sufficient indication for exploratory operation. In conjunction with a failure of the X-ray defect to improve, it should be regarded with grave suspicion.

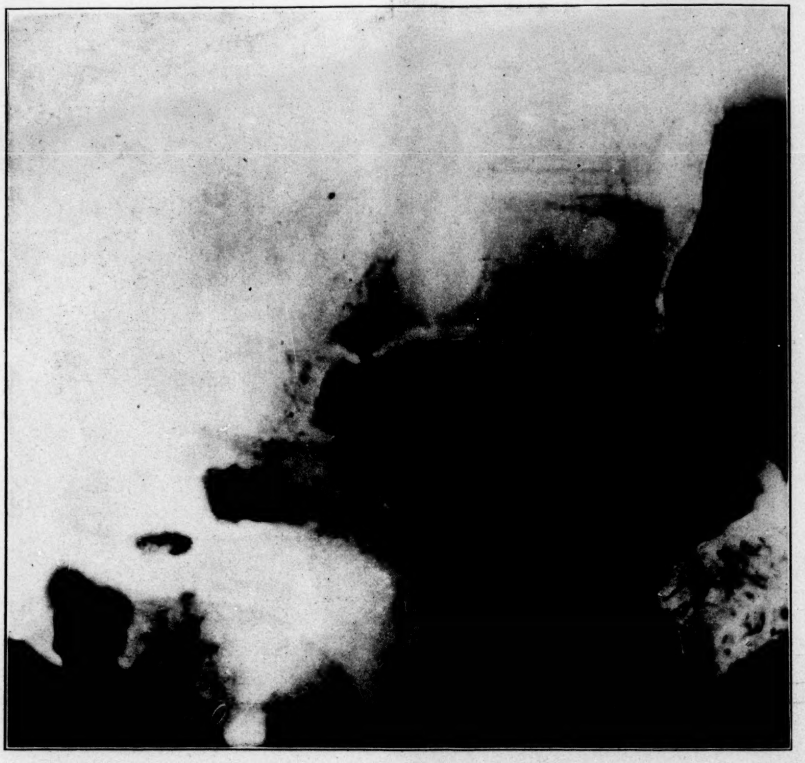


FIG. 3. The same case as in Fig. 2 after 4 weeks' treatment. Niche barely demonstrable by X-ray.

X-ray defects, which are unchanged by management, fall into two groups: (1) cicatricial deformities of healed ulcers, and (2) defects due to malignancy and therefore unchanged by ulcer treatment. The cicatricial deformities of the healed ulcer, such as the hour-glass stomach, are an indication for surgery only when they cause symptoms of obstruction. The deep incisura of the active ulcer on the gastric side, which may resemble an hour-glass deformity in X-ray, is usually released as the acute inflammatory stage of the ulcer subsides under management. The duodenal defect is much less likely to show complete return to normal than that on the gastric side. In duodenal defects, therefore, where malignancy need hardly be suspected, it is sufficient to note a decrease in spasm of the antrum and in hyperperistalsis, the secondary evidence of activity and a disappearance of tenderness over the defect during fluoroscopy. These X-ray data combined with the disappearance of occult blood from the stools and of ulcer distress are sufficient evidence for a continuation of medical management for duodenal ulcer.

Fortunately for the peace of mind of the gastro-enterologist who watches progress in medical management of gastric ulcer, the X-ray evidence of improvement on the gastric side, where malignancy must always be suspected, is more striking. During the first two weeks of medical management the niche should show definite diminution in size and after a month should no longer be obvious in fluoroscopy. A persistent deformity on the gastric side, unless it be the hour-glass contraction of the obviously healed ulcer, (see Fig. 1) should be strong evidence for surgical intervention. Combined with a lack of free HCl and the presence of lactic acid and long bacilli, it becomes positive evidence for malignancy and if the lesion is so located that it is amenable to surgery, no time should be lost in substituting surgical for medical management.

The following briefly outlined case reports show types of cases which may be safely carried along on ulcer management and others where surgery is indicated.

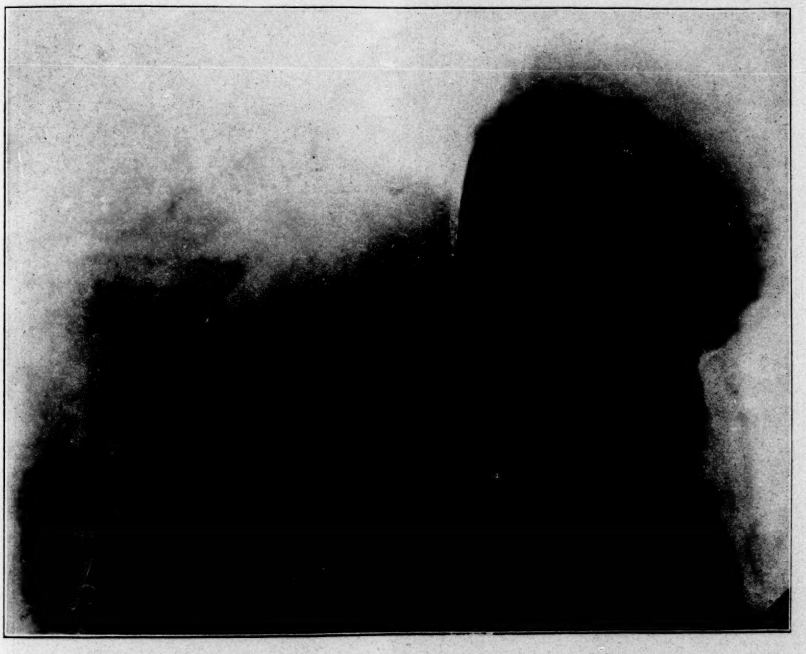


FIG. 4. Same case as in Figs. 2 and 3, after 3 months of management. No defect demonstrable by X-ray. Patient clinically well.

Figs. 2, 3 and 4 show by X-ray the progress of medical management in a case of gastric ulcer in an 81 year old man sent in as a case of pyloric obstruction because of continued vomiting. Ulcer management at once relieved the symptoms and the defect of the lesser curvature as shown in Fig. 1 was gradually reduced until within 4 weeks there was only a very slight defect demonstrable by fluoroscopy. In 3 months (Fig. 3) it was impossible to find any abnormality by X-ray and the patient was clinically without symptoms. Eight months have now passed since the beginning of management and the patient is apparently well.

Figs. 5, 6 and 7 illustrate progress in a similar case in which the patient was admitted with a history of recent hemorrhage and continued vomiting—unrelieved by medical treatment at home. The ulcer niche was found to be unusually large and for this reason it was at first suspected that the condition might be malignant. Inasmuch as there was normal free HCl after Ewald test meals and no clinical evidence of malignancy, the condition was managed medically. Occult blood disappeared from the stools in seventeen days and the size of the ulcer defect decreased rapidly so that within six weeks it could hardly be perceived with fluoroscopy. Clinically this patient has regained health.

Figs. 8 and 9 illustrate a duodenal ulcer case in which the patient, a man of 47 years, was admitted with severe prostrating upper abdominal pain, and a history of vomiting of several days' duration. The previous history was one typical of gastric or duodenal ulcer. A test powder given as soon as the patient was admitted was retained and produced relief of the pain. Inasmuch as there was no abdominal spasm, it was considered safe to observe the patient for a few days. Ulcer management was, however, begun at once and the patient had no recurrence of symptoms, showed progressive improvement, and in several weeks was clinically well. Fig. 8 shows the condition of the duodenum a day after the patient was admitted, with an ulcer apparently beginning to perforate and considerable periduodenitis. The appearance of the duodenum five months later is shown in Fig. 9. A duodenal defect is still present, as is so often the case in duodenal lesions, but it is apparently a healed area and the patient is well.

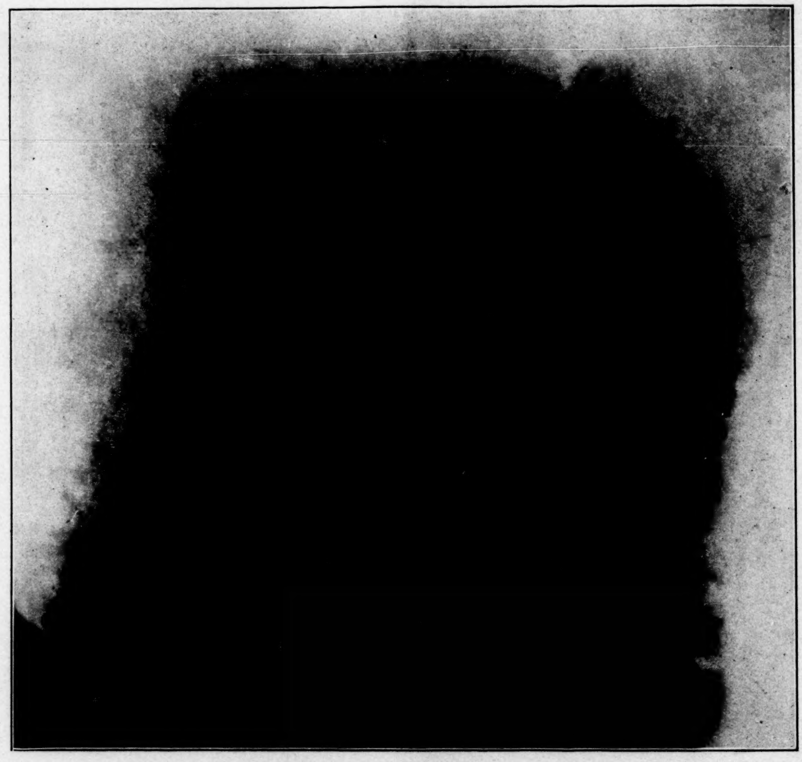


FIG. 5. Large defect of lesser curvature in second case described. This patient had also a duodenal lesion.

The next two cases illustrate conditions which arise during the course of medical management and make surgical intervention necessary. The first was that of a man of 52 years, with a long history of indigestion typical of gastric or duodenal ulcer, but showing in the three weeks preceding admission a change in the character of distress (which in our opinion may be very significant). On admission physical examination was negative except for a mild secondary anaemia. His free HCl after Ewald meals was a low normal; he had occult blood in his stools and his distress was immediately relieved by test powders. He showed by fluoroscopy, Fig. 10, a duodenal defect with a deformity of the pyloric end of the stomach which we believed at first might be due to spasm. Ulcer management was begun with immediate clinical improvement and gain in weight. Subsequent fluoroscopies even with atropine preparation showed the same defect in the pyloric end of the stomach and after two weeks' management in spite of the disappearance of occult blood from the stools, a gain in weight of seven pounds and marked clinical improvement, a laparotomy was done. A gastric lesion was found which to palpation was so suspicious of malignancy that pylorectomy (Polya) was performed. The pathological diagnosis was early adenocarcinoma of the stomach. The patient is now, five months after operation, doing full time work and is apparently well.

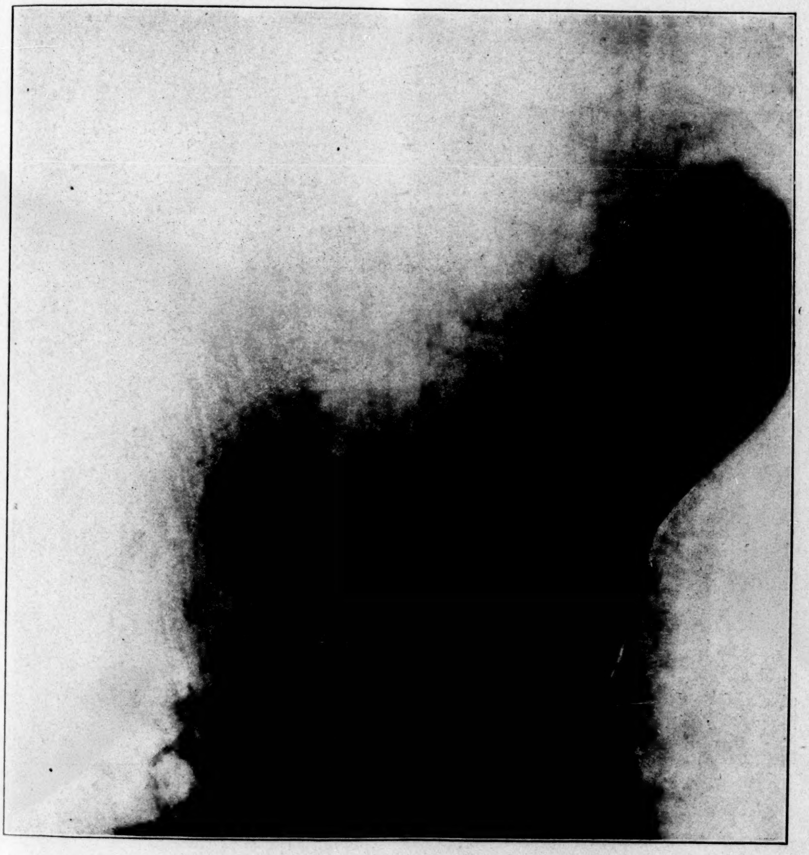


FIG. 6. Decrease in size of defect (case shown in Fig. 5) after 3 weeks' treatment.

The last case, illustrated by Fig. 12, shows a similar condition in a woman of 69 years with a long history of ulcer distress recently increasing in severity. Aspiration after Ewald meal showed free HCl 18. There was occult blood in the stools and a definite duodenal defect by fluoroscopy. In addition the stomach showed an area on the lesser curvature suspicious because peristaltic waves failed to pass over it. This woman improved markedly, from the clinical aspect, with a week's ulcer management but repeated fluoroscopy showed the same area in the stomach which was apparently rigid. Laparotomy was done and in addition to the duodenal lesion an ulcer-like lesion was found near the pylorus. Because of the suspicion of malignancy, pylorectomy was done and the lesion proved to be lymphoma.

The five cases described are of interest because they illustrate in the first three cases lesions of the stomach and duodenum which without careful observation might have been subjected to unnecessary operation with the attendant risk. These cases, in spite of indications which might have been considered surgical, responded adequately to medical management and are apparently well. The last two cases, on the contrary, might perhaps, without adequate follow-up observations during management, have been carried along on medical management when surgery was definitely indicated.

All of which goes to prove the familiar fact that in the management of gastric ulcer it is as important to put on the operating table those cases in which a surgical indication can be reasonably suspected as it is to keep from the operating table those cases which can be cured medically.

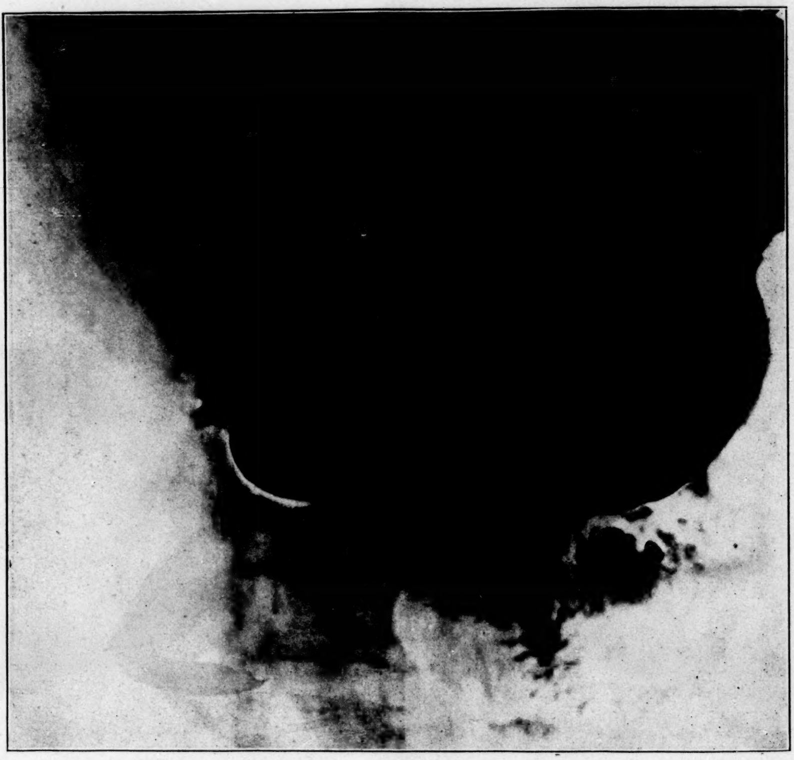


FIG. 7. Complete disappearance of gastric defect after 2 months' management. Patient clinically well.

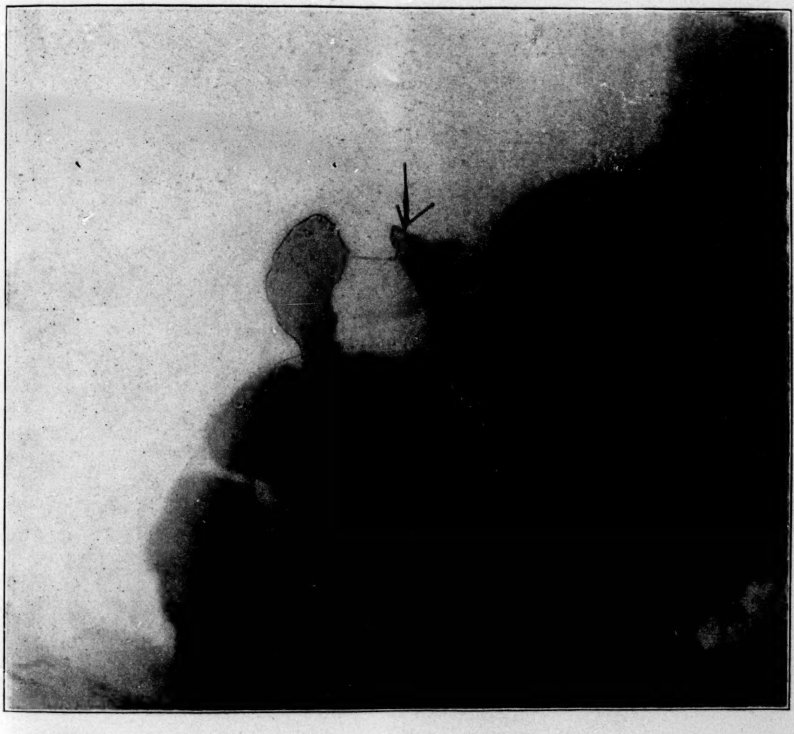


FIG. 8. Case of duodenal ulcer in man of 47 years before the beginning of treatment

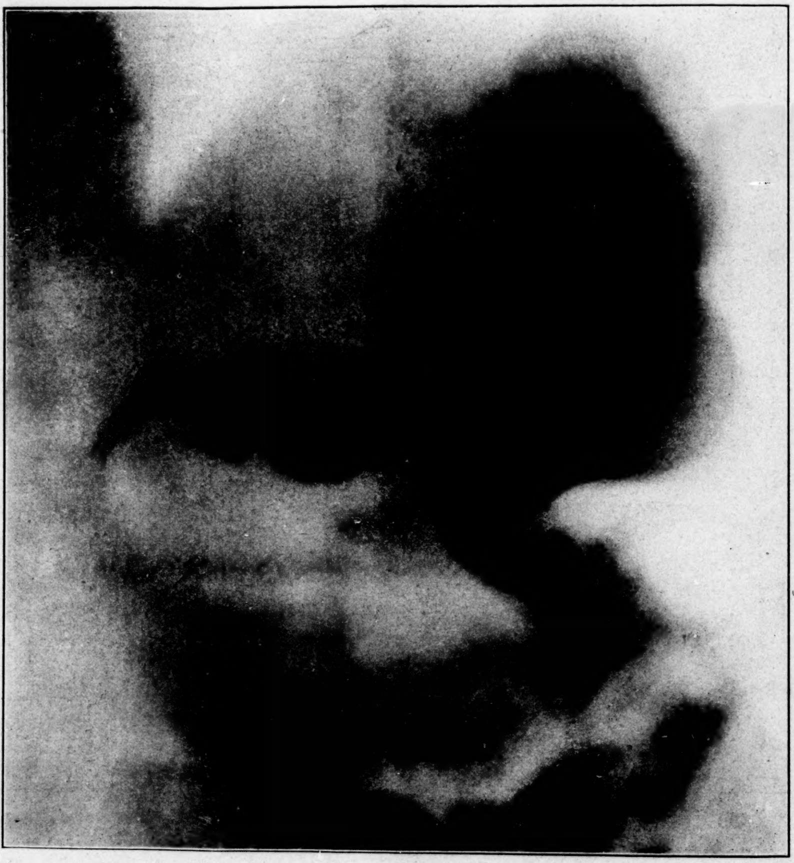


FIG. 9. Improvement in case of duodenal ulcer after 5 months of management. Patient clinically well.

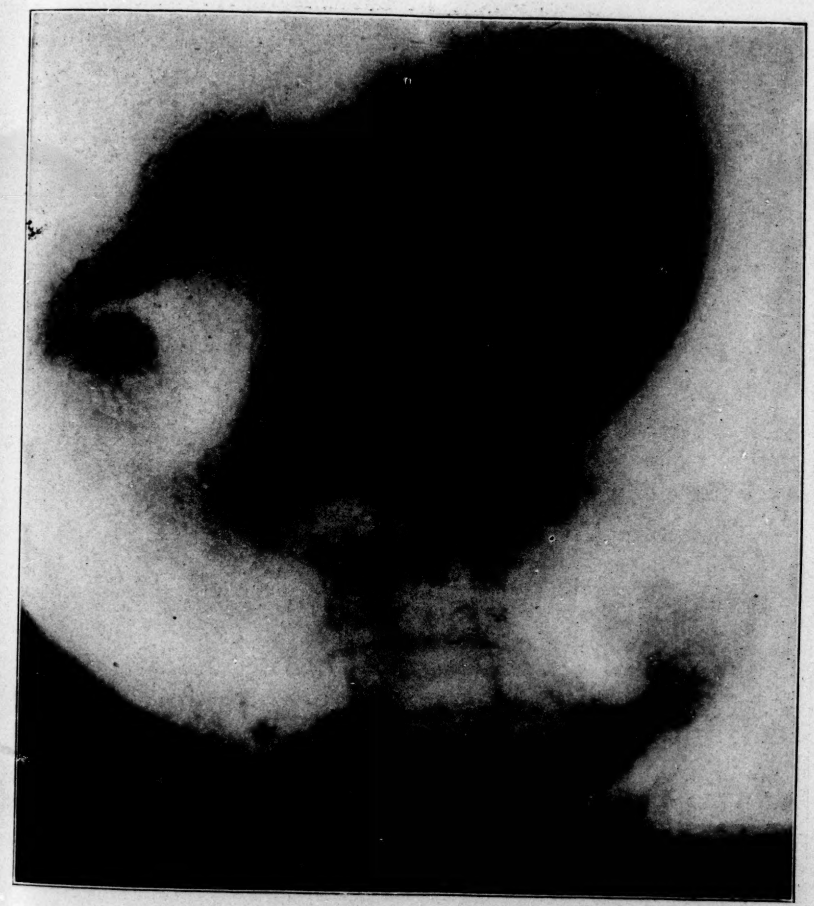


FIG. 10. Duodenal defect with deformity of antrum at first believed to be due to spasm.

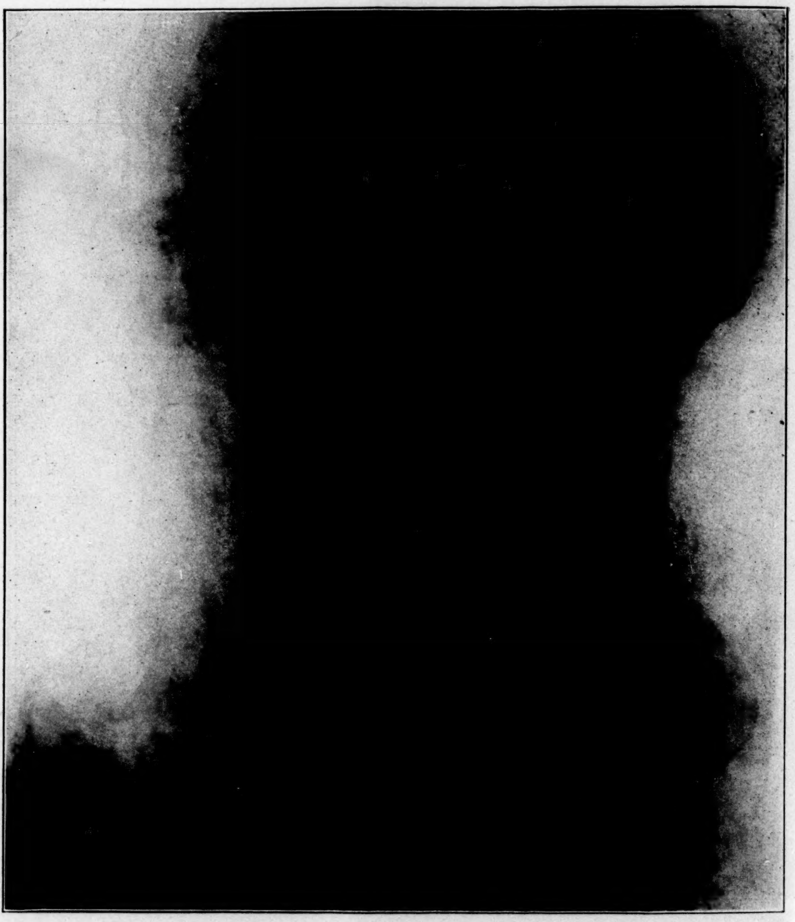


FIG. 11. Persistence of deformity of pyloric end of stomach in spite of clinical improvement.

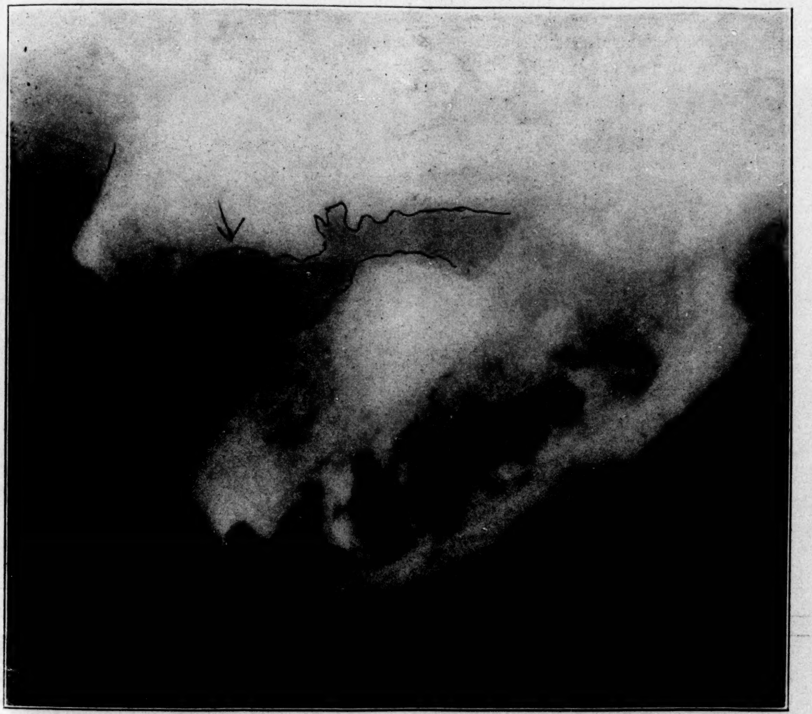


FIG. 12. Area on lesser curvature of stomach over which waves could not be seen to pass. This patient also had a duodenal lesion.

FRACTURED NECK OF FEMUR. OPERATION OF TRANSPLANTATION OF FEMORAL HEAD TO TROCHANTER. REPORT OF CASE SHOWING RESULT EIGHT YEARS AFTER OPERATION

BY E. G. BRACKETT, BOSTON

It is always of value to be able to inspect the end result of treatment or of operation after a long period of activity on the part of the patient, and it is because of this rather unusual opportunity that this case is reported. This individual returned to work after the usual interval following the operation, and has constantly pursued his occupation, that of a shoe cutter, which requires continuous standing.

The case was one of a man of 53, who had had a fracture of the neck of the femur 2½ years previously, and from that time, as well as at the time of the operation, the patient had been obliged to use crutches. The operation of transplantation of the loose head of the femur onto the upper and inner portion of the trochanter was performed, by the method described in the article published in the Boston Medical and Surgical Journal under the date of September 13, 1917. The man made an uneventful recovery from the operation, using at first crutches and later a cane, and resumed his regular work after several months.

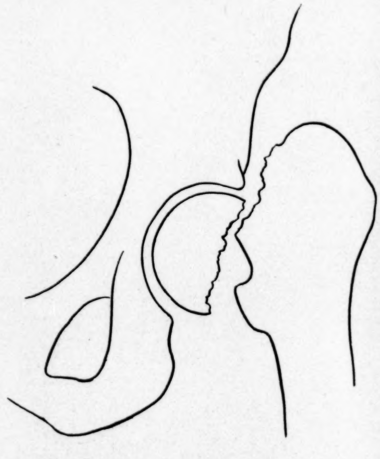


FIG. 1. Outline of femur before operation, two and one-half years after original fracture.

The X-ray taken at the time of the operation is shown in the accompanying drawing. Unfortunately, this ray was not strong enough to give a satisfactory print for reproduction, but the illustration is made from a careful tracing from the negative. It showed the ordinary type of fracture of the neck of the femur, with the usual absorption of the neck, and with the head clear and the same amount of osteoporosis generally seen after the interval, the joint outline comparatively free from any osteoarthritic changes, and a good even cartilage space remaining.

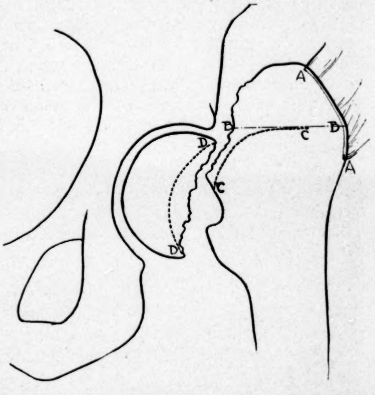


FIG. 2. A—A, Muscles detached from outer side of trochanter and removed with periosteum and small layer of bone. B—B, Level at which trochanter is removed. C—C, Convex surface of upper and inner aspect of trochanter. D—D, Concave surface made by hollowing out fragment of head in the acetabulum to correspond with convex surface of trochanter.

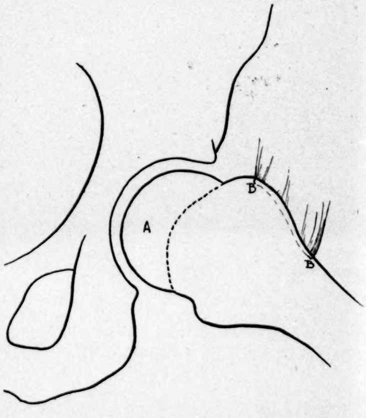


FIG. 3. A, Head in position on upper and inner surface of trochanter. B—B, Muscles shown in Fig. 2, A—A, are here shown reattached at lower level on shaft of femur.

Present condition, 8 years after operation. This patient is steadily at work, does not use a cane, and has the limp only of shortening, plus that accompanying a loss of hyperextension, or possibly with a few degrees of flexion of the hip joint. He does not experience any special tire with ordinary exercise, and can go up and down stairs with one foot after the other. The examination of the leg made 8 years after the operation in February 1924 shows:—

Slight hip flexion gait on account of slight flexion of hip. While sitting, the man can place left leg over right knee, but not left ankle. Can stand on right foot with left foot on chair, with hip at right angles. The motions of the left hip are:—

AGS 65°
AGE 165°
Abduction to 23°
Abduction to 17°
Outward rotation 60°
Inward rotation 5°
No limitation of knee action.

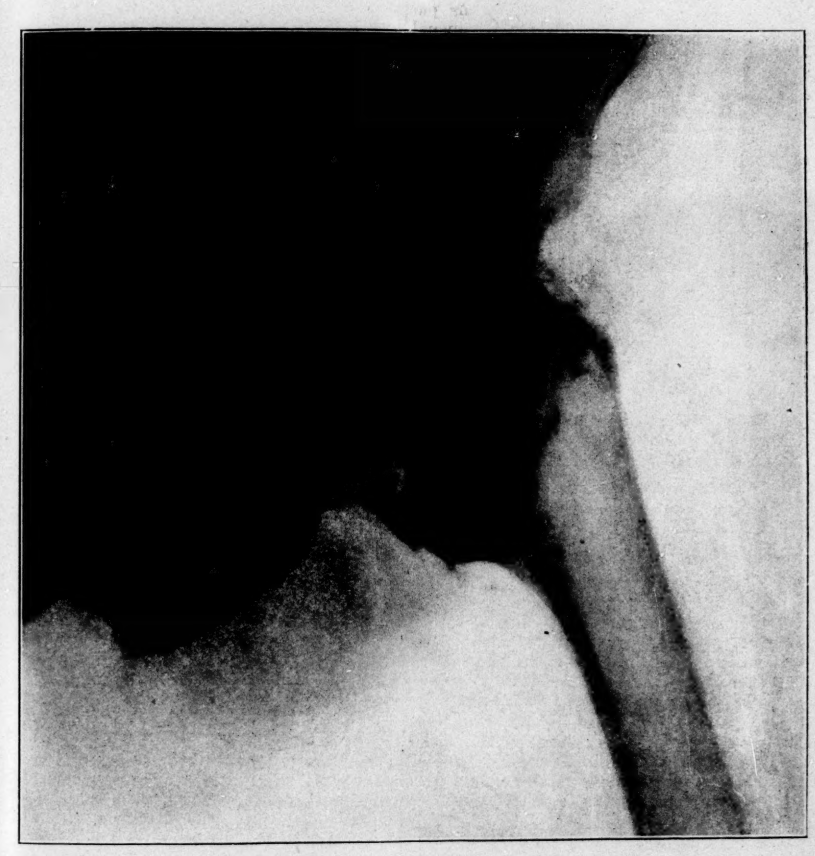


FIG. 4. X-ray taken in 1924, showing condition eight years after operation.

The X-rays taken at this time show a firm union of the head of the trochanter with a little more approach to the horizontal position than is ideal, but in the position to give firm weight bearing. It is interesting to note also that, after

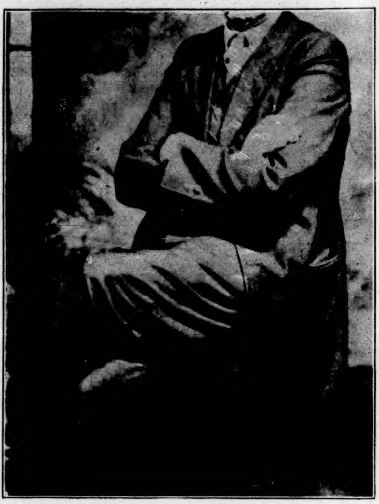


FIG. 5. Patient (X-ray shown in Fig. 4) sitting with femur flexed at right angle on pelvis and adducted with left knee crossed over right femur.

this lapse of time, there is no further development of osteoarthritic change which is sometimes claimed to develop after this injury. The cartilage line remains clear and of a satisfactory thickness.

The case is reported as of interest to demonstrate the possible functional condition of a joint following an operation for this injury after a long period of use. It emphasizes the fact that this operation should not be performed in those cases which show any extensive degree of osteoarthritic change or irregularity of cartilage outline, although decided porosity of the remaining head does not seem to be a contra-indication for the operation. The advantage of the method is largely the fact that the normal joint structures are used in their normal relations for after-use.

The illustrations in the original article were not seen by the author until after publication (on account of absence in Service) and unfortunately are faulty. For this reason, the two drawings are included in this short report to illustrate properly the preparation of the bone fragments for the transplantation of the head to the trochanter, and their position when placed in position.

A HOLLOW DILATOR FOR USE IN CASES OF CHRONIC TRACHEAL STENOSIS

BY FREDERICK E. CRUFF, M. D.

Resident Physician, John C. Haynes Memorial Hospital

VERY early in dilating tracheal strictures, which had occurred as a result of acute infections of the larynx, the following difficulty with the solid types of dilators came to my attention.

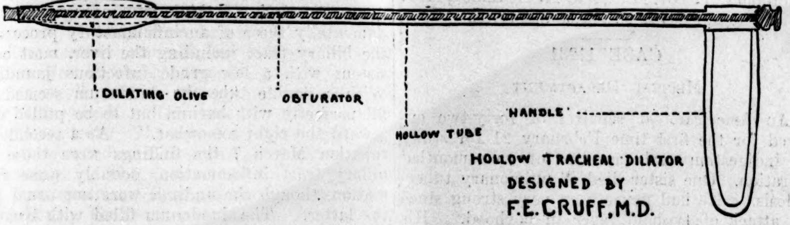
The smaller calibers up to, perhaps, the number 20F. could be passed into the stricture without difficulty and have the lower end go by the tracheal cannula; which if properly fitted should take up only one half the diameter of the trachea. The larger sizes, the numbers 22 to 26F., would meet with difficulty as the lower end of the dilator would hit on the tracheal cannula. This prevented the largest diameter of the dilator from entering the stricture and made it necessary to remove the cannula before satisfactory dilatation could be accomplished. This, in certain cases, led to the following trouble: the neck wound from which the cannula had been removed would close and prevent the entrance of air, the dilator was in the stricture corking it up. This resulted in inability to breathe and often cyanosis. The only solution was to either hold the neck wound open as with adhesive straps, or often to insert a Mosher tube after removal of the dilator, in order to get the child breathing properly. This process of removing the dilator and inserting the Mosher tube often had to be repeated several times in the course of a treatment. In such a case it will be seen that the time that the dilator could be left in the stricture must be rather short. It is also evident that the time consumed in a given treatment is longer and the safety of the procedure is lower than if a hollow dilator were used.

I appreciate the fact that this difficulty might not be met with in larger children or in cases where the treacheotomy was a low one, and where there was sufficient room between the stricture and the tracheal tube, so that even with the larger sizes the maximum diameter of the dilator would go into the stricture without hitting the cannula. In adults or older children this might be the case, but in dealing with strictures in young children, even if the tracheotomy be done through the third ring, the difficulty I have mentioned above is often met with.

In an attempt to obviate this difficulty, prevent the cyanosis, shorten the time of treatment and raise the factor of safety, all of which is after all a mechanical problem, I thought of the use of a hollow dilator.

The dilator devised and made up for the purpose consists of a hollow tube 5/32 of an inch in diameter and of proper length. At one end is a handle set at a right angle, near the other end is fixed a dilating olive; through the tube runs an obturator with a blunt end. The olives are firmly fastened to the tubes so that different sizes of dilators are necessary.

The sketch will, perhaps, make the construction more clear.



HOLLOW TRACHEAL DILATOR
DESIGNED BY
F.E.CRUFF, M.D.

At the present time I am using two sizes of dilators, a number 22F. and a number 24F., but there is no reason why larger sizes could not be used.

The technic for using this dilator, which, in my hands, has given the best results, is as follows: the stricture is dilated up with the smaller sizes of solid dilators until difficulty with the tracheal tube is met with. This usually occurs at about the 22F. The tracheal tube is then removed and a number 22F. hollow dilator inserted and passed through the stricture. The obturator is removed which allows breathing through the instrument. The dilator which at this stage is below the stricture is now brought back until its greatest diameter is engaged in the stricture using it in this instance as a retrograde dilator. This use as a retrograde dilator is so that the edges of the lower end do not act as a cheese cutter and cause bleeding. The dilator can now, with perfect safety, be left in place until the stricture is completely stretched for that size. The next larger size is then used in the same way.

Up to the present, this hollow dilator has been in use for about ten months. One of our cases is a boy who with the solid type of dilators and cannula out became cyanotic almost at once, and had to be straightened out several times during a treatment. He now goes through a complete dilatation without at any time becoming cyanotic.

In all the cases in which it has been used, this hollow dilator has worked as well as the solid type as a dilating instrument and in addition it has added an element of safety which we did not have before.

◆

A LEGAL DECISION CONCERNING A PHYSICIAN AND THE MASSACHUSETTS WORKMEN'S COMPENSATION ACT

BY T. K. RICHARDS, M.D., BOSTON, MASS.

In so much as many physicians have undoubtedly had rather annoying experiences in dealing with insurance companies regarding the settlement of their bills for the treatment of workmen's injuries, perhaps minor in nature, which have occurred while the individuals were at work, and accordingly were supposed to come under the Workmen's Compensation Act, it seemed worth while to report to the medical profession the following case:

"A company carrying on the business of repairing automobiles was insured under The Massachusetts Workmen's Compensation Act. One of its workmen in the course of his regular employment was injured, whereupon the foreman caused a telephone message to be sent to a doctor who was not in the employ of the insurance company and as a matter of fact knew nothing about the employer being insured in the present case. As a result of this telephone call and at the request of the company, the doctor treated the workman and rendered a bill for services to the employer. The employer corporation thereupon turned over the bill to its insurance company, which secured a ruling from the Industrial Accident Commission reducing the amount of the bill to about one half of that rendered.

"Question arises as to whether, under The Massachusetts Workmen's Compensation Act, there is such a jurisdiction or right in the Industrial Accident Commission to consider or reduce physicians' fees rendered unconditionally to the employer and at the employer's request."

The Judge in the Municipal Court of Boston rendered a decision in favor of the plaintiff (the doctor) for the sum claimed. The Judge, also, added that he found that the doctor was unconditionally employed by the employing corporation, and that accordingly they, and not the insurance company, were liable for the full amount of the doctor's bill.

The bill in its original amount has been collected.

Case Records of the Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY
RICHARD C. CABOT, M.D., AND HUGH CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 11231

MEDICAL DEPARTMENT

An American car repairer of forty-two entered for the first time February 21 for study of indigestion and jaundice of two months' duration. One sister died of pulmonary tuberculosis. He had never been very strong since an attack of typhoid fever in boyhood. His bowels had always been constipated. For twenty years he had much nasal obstruction following fracture of the nose. This was relieved by submucous resection of the nasal septum a year and a half before admission. Before this operation he had some headache. He caught cold in the head easily. Two years before admission he was operated upon for right inguinal hernia. For several months he had been troubled with cramps in his hands and feet both day and night. He chewed tobacco "all the time" until the past two months, when tobacco in any form had made him sick and brought on the pain in his stomach.

For a number of years he had been troubled with indefinite pains in the arms and legs which he thought were due to rheumatism. For the past year he had felt weak and tired. Some time during the past summer he began taking Weldona, and since that time had taken three packages. Two months before admission a dull, burning, non-radiating retrosternal pain began to occur immediately after eating, lasting two or three hours and relieved temporarily by the belching of gas, of which he had a good deal. His urine had been red and his stools clay colored during the two months, and he had been growing more and more jaundiced.

Examination showed a rather thin man with markedly jaundiced skin and sclerae, and was otherwise negative except for a questionable liver edge below the costal margin, a small bilobed right hydrocele, and the scar of the right inguinal hernia operation.

The temperature was 97° to 100.1°, the pulse 60 to 99. The blood pressure was 120/80 to 90/64. The output of urine was 28 to 65 ounces, the specific gravity 1.010 to 1.030. The urine was cloudy at three of seven examinations, bile stained at two, showed bile at five, leucocytes at six, no albumin or sugar. The hemoglobin was 70 per cent., the leucocytes 6,400 to 12,000, the polynuclears 79 per cent., the reds 4,850,000 February 21, 3,680,000 March 13, 5,312,000 March 20, with slight achromia. The platelets were decreased. The clotting time February 21 was six minutes, with calcium chlorid eight minutes, February 28 six minutes, March 1 eight minutes. Serum dilution March 1 was 1:55, March 8 1:60, March 21 1:60. A Wassermann was negative. After duodenal intubation February 27 Dr. Chester Jones reported, "I think the findings are fundamentally those of an inflammatory process in the biliary tract including the liver, most consistent with a low grade infectious jaundice. With a double tube the duodenum seemed to fill perfectly with barium but to be pulled out toward the right somewhat." At a second intubation March 7 the findings were those of biliary tract inflammation, possibly stone formation, though the findings were not usual for the latter. The duodenum filled with barium from the jejunum to the pylorus. There was no evident deformity of any part of duodenum, which was seen well this time and did not seem to be pulled out of place. The stools were clay colored at the first of thirteen examinations, green at one. There was very little bile at the first examination, bile at the second, an increased amount March 3. Guaiac was negative at all examinations until March 7, afterwards strongly positive. X-ray February 27 showed the stomach empty in normal time. Its position was high and toward the right, so that the duodenal bulb and portion of the pyloric end lay beneath the right costal margin and not readily accessible to palpation. The margins of the stomach in this region presented a somewhat irregular appearance, but this irregularity was not of a constant nature and flexion was apparently normal. The duodenal bulb was not seen to fill completely at any time during two separate examinations made on different days. There were no tender points. The ileum, cecum and colon were not remarkable. The findings were suggestive of a pathological process in the right upper quadrant with probable adhesions involving the duodenum and the pyloric end of the stomach.

February 23 the liver could not be felt. The patient ate very heartily with no abdominal discomfort afterwards. March 6 he had slight temperature and cough. March 9 the skin was clearing rapidly. March 13 he was much worse. There was some edema of the ankles and probably some fluid in the abdomen, which was too greatly distended to be readily palpated. There was tenderness over the entire abdomen. Next day he had persistent vomiting, and March 16 vomited coffee ground material with strongly positive guaiac. March 22 there was pitting edema of the feet and lower legs, which had entirely cleared by March 26. Gastric analysis March 26 showed 20 c.c. of fasting contents, free acid 0, total acid 20 c.c. The test meal showed 10 c.c. of free acid, total acid 25 c.c. That day he was discharged.

During his four days out of the hospital the patient vomited all food and had sharp pain indefinitely localized just below the umbilicus after eating, and indefinite "grinding" pain in the abdomen all the time. The abdomen was distended and the ankles very slightly edematous.

March 30 he reëntered the hospital. His speech and mentality were slow and he did not remember exactly when he left the hospital.

Examination showed him extremely weak. There was brownish pigmentation of the skin and a small patch on the mucous membrane of the left cheek. The sclerae were perhaps slightly icteric. The apex impulse of the heart is not recorded. There was no enlargement to percussion. The first sound was impure and of poor quality. The pulmonic second sound was faint. The blood pressure was 105/65. The lungs showed dullness in both axillae below the fourth space. Anterior to the axillary line tympany replaced the liver dullness. Posteriorly there was flatness with absent breath sounds and fremitus below the angles of the scapulae. The abdomen was bulging in the flanks, with fluid wave. There was dullness in the left flank, tympany on the right side, and tenderness on deep pressure in the right upper quadrant. The liver was not felt. There was questionable left hydrocele. There were external hemorrhoids. The prostate was tender. The ankles were edematous. The knee-jerks were very lively.

The temperature was 98° to 101.8°, the pulse 80 to 152. There is no record of the urine except a normal amount. The hemoglobin was 80 per cent., the leucocytes 8,000, the polynuclears 60 per cent., the reds 5,000,000, with moderate anisocytosis and slight poikilocytosis. The stools showed a positive guaiac at three of four examinations, very strongly positive at the last two.

The morning of April 1 the patient vomited a basinful of blood. He continued to vomit for two days and was weak and irrational most of the time. April 4 he became comatose and died.

Discussion

BY DR. RICHARD C. CABOT

NOTES ON THE HISTORY

There is a good deal of material that we cannot make anything of in this first paragraph. In fact there is little that we can do anything with until we come to the "cramps," which I will venture to guess have some connection with the present illness. Then we find these indefinite pains, probably due to the same cause as the cramps. Then more definite pain apparently connected with the formation of "gas" i. e. the retention of atmospheric air in his stomach. The most definite symptom however that we have is the jaundice. I take it that has been present and increasing for two months. His so-called "gas" can probably be connected with that. His pains and cramps I do not think can.

NOTES ON THE PHYSICAL EXAMINATION

1. There was bile in the urine at every examination. There is no difference that I know of between being "bile-stained" and "showing bile." It is rather surprising that they did not find albumin because the presence of bile in itself is ordinarily enough to cause albuminuria.

2. Whether the various red counts represent a real change in the blood or a mistake in technique I do not want to judge until we know how far apart the two counts are.

Miss Painter: The first count was on the 21st of February, the second on the 13th of March, the third on the 20th of March.

Dr. Cabot: The question is whether his red cells are likely to have gone up from three and a half millions to almost five and a half millions in that time. As he was in the same period progressing towards death it does not seem probable. I think there is a mistake in technique.

3. Serum dilution is a way of measuring the degree of jaundice. The normal is about one to fifteen, so this record means about four times as much bilirubin in the serum as there normally should be.

4. If the Wassermann had been positive we should not have thought anything of it because in the presence of jaundice a positive Wassermann is not very significant.

5. The duodenum seems to be pulled out of place by the gall-bladder. That is what they were suspecting.

6. It is unusual for a jaundiced patient to eat heartily.

7. They are looking for the possibility of Addison's disease, which gives pigmentation on the mouth as well as on the skin.

8. "On February 23 the liver could not be felt." That is a very important observation if it can be recorded again and again and if we can be reasonably sure that there is no abnormal distension of the colon. Liver dullness can be abolished by a distended colon, by free gas in the peritoneum, and by a disease involving diminution in the liver size. Here we can easily exclude free gas by the accompanying local and general symptoms of the patient. It is not so easy to determine that the colon is not pushing up between the examiner and the liver If we can exclude this we have most important evidence in relation to the liver, namely *a diminution in its size*. We rarely can make sure

of that. It is easy to be sure when the liver is enlarged. It is difficult to be sure that it is shrunken. But we have had many cases here where after all precautions were taken it seemed to us in life that the liver was diminished in size and it was proved so at necropsy.

9. They were uncertain before about the fluid wave. Now they are sure.

DIFFERENTIAL DIAGNOSIS

This is to me so far a very blind case. I hope at the end of my discussion I shall know more about it than I do now. Let us put the facts together as well as we can. Here is a man of middle age, with nothing in his previous history to guide us so far as I see either towards the diagnosis of gall-stones—that is no history of previous attacks—or towards the diagnosis of a duodenal or gastric ulcer from which this hemorrhage might have come. His illness seems to be essentially one of a few months. In that few months' time the essentials seem to be jaundice, ascites, a color of the skin coming on later than the jaundice, and apparently not the same, but characterized as "brownish pigmentation" and associated with pigmentation in his mouth.

1. We have a rather low blood pressure, not extraordinarily low, not as low as we find usually in *Addison's disease*. We have nothing to suggest the usual cause of Addison's disease, that is tuberculosis. I never knew anybody to vomit this amount of blood in Addison's disease. One doesn't find changes in the size of the liver in Addison's disease, but of course we are not sure of that finding. Still I think we can exclude Addison's.

2. In addition to the symptoms I have mentioned, he has a good deal of vomiting and a number of times the guaiac test is positive in his stools. Can we make out a diagnosis of *cancer of the stomach* with perhaps metastases in the liver? He is not too young for it though he is rather young. But his X-ray is certainly not characteristic of it at all. Though they were uncertain about the duodenum they certainly did not believe when they made the X-ray that there was any cancer in the stomach. There is nothing said as to any residue and we have to remember that there is a period here when he ate very well. I won't say that this never happens in cancer but I do not remember it in the patients that I have seen. He ends with a tremendous hemorrhage which could have been from cancer of the stomach. This is not common at all but I am sure we have had such cases here.

If he has cancer we certainly have to suppose hepatic and glandular metastases to account for his jaundice and for his ascites. But those are perfectly possible results of metastasis from a gastric cancer. He did not have absence of hydrochloric acid after the test meal even though he did in the fasting contents. The strongest point, I think, against gastric cancer is the X-ray. We seldom miss it in our examinations here and less and less of late years, and this is a fairly recent case. The history might be that of gastric cancer. It is a short history of indefinite stomach trouble. He evidently had digested blood in his stomach contents once. We had the "coffee-ground" phrase. But a liver containing metastases from cancer ought to be palpable, ought to be enlarged. If he has no metastases in his liver we cannot account for his jaundice. On the whole it seems to me we can rule out cancer of the stomach, the two chief points against it being the X-ray and the condition of the liver.

3. The liver itself is the most natural place to look for his trouble and the two things that are most in our minds are cirrhosis and acute yellow atrophy. We have had rather an extraordinary series of cases of acute yellow atrophy in patients who have been taking this medicine called "Weldona" so that this disease is naturally suggested to anybody who has been attending these exercises when we hear that word.

(a) Can it be *acute yellow atrophy?* I should say yes, it can. I do not remember however having seen another case in which the jaundice disappeared during observation. So far as I remember the patients grow more yellow and not less yellow as time goes on. The findings in the stomach and liver, the ascites, the terminal hemorrhage, all seem perfectly possible from acute yellow atrophy.

(b) With *cirrhosis* one expects an enlarged spleen. Perhaps he had an enlarged spleen. They did not find it. If the examination was properly made, the absence of an enlarged spleen is against cirrhosis. Otherwise I think it could be cirrhosis. Jaundice, stomach trouble, ascites, diminished liver dullness, terminal hemorrhage, are perfectly natural in cirrhosis.

4. Can we be dealing here with an inflammatory lesion of the gall-bladder, a cholecystitis with or without stones? I do not see how we can. We ought to have either pain, fever or persistent jaundice and we have not. I never knew a man to die of gastric hemorrhage in that condition. We see plenty of people dying of hemorrhage after operation, but to see a person die of spontaneous hemorrhage, especially as he was not jaundiced or only slightly so,—that I do not remember. The X-ray does not rule out stone of course. It never can.

5. There is nothing to my eye that suggests *cancer of the stomach* in any of the plates.

6. With *ulcer of the stomach* we could not account for his ascites.

So I come back to the question between cirrhosis of the liver and acute yellow atrophy of the liver, which seem to me the two most probable lesions. I am not certain about large gastric hemorrhage in acute yellow atrophy. I think I remember it in the literature. I do not remember personally having seen it. It is of course very familiar in cirrhosis. But in cirrhosis the development of ascites ordinarily precedes death by more of an interval than it does here. This ascites only developed a few months before death. A cirrhotic patient ordinarily has ascites for a good many months if not years, if he has it at all. A good many of them never have it. We know nothing about any alcoholic history. We are told about tobacco so I imagine they asked about his habits.

Miss Painter: There is nothing.

Dr. Cabot: Although a good many people are skeptical as to the connection of alcohol with cirrhosis I certainly believe there is a connection, and if this statement is true, if he was not lying—and I don't think most of our patients do lie about that matter—that is against cirrhosis,—though not sufficient to exclude it.

I have seen very few cases of cancer of the duodenal papilla. Dr. Chester Jones evidently did not think there was anything locally wrong in the duodenum. The X-ray people are not quite so positive. But if there were cancer there we certainly should expect a permanent jaundice and we do not have that.

On the whole the case seems to me more like acute yellow atrophy than anything else I can say.

Dr. E. L. Young: I would entirely follow your arguments except for one thing. The fact of that remission would be the one thing that would make me think there might be an inflammatory process as the first cause. That is, an increase of bile in the stool and a decrease of jaundice. And not knowing what the etiology of acute yellow atrophy is in any case I wondered if this might be the case where a persistent inflammatory process later led on to acute yellow atrophy. It would be the one thing that would make me advise exploration in this case.

A Student: What does Weldona contain?

Dr. Cabot: We do not know what it contains. We have tried to get it analyzed, but so far have not got any analysis that is at all complete. The fact that it is sold so much, taken so much by so many people, makes it rather unlikely *a priori* that it contains any poison. The consequences to fall upon the head of any manufacturer are such that it does not seem likely to contain any such poison as would affect the liver. On the other hand we have had this extraordinary coincidence of acute yellow atrophy and the Weldona habit.

A Student: Might it not cause cirrhosis?

Dr. Cabot: I do not know whether it could. I have not anything to say. I do not say that it does cause acute yellow atrophy. But if it did cause the one disease it might cause the other.

X-RAY INTERPRETATION

Malignancy involving the head of the pancreas should be considered in addition to a possible disturbance in the gall-bladder and liver.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Cirrhosis of the liver.

DR. RICHARD C. CABOT'S DIAGNOSIS

Acute yellow atrophy of the liver.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesion*

Atrophy of the liver.*

2. *Secondary or terminal lesions*

Ascites.
Hydrothorax.
Hemorrhagic edema of the lungs.
Serofibrinous pleuritis, left.

Dr. Richardson: The head was not examined. The conjunctivae were negative. I could not make out any definite discoloration. The skin was dusky sallow, suggestive of icterus.

Dr. Cabot: You would not call it brown?

Dr. Richardson: No, it was dusky yellow.

Dr. Cabot: There was evidently a question here about Addison's disease.

Dr. Richardson: There was a little edema of the feet and ankles. The peritoneal cavity contained 2500 c.c. of thin pale clear fluid. The esophagus showed well marked varices and the mucosa of the stomach was velvety and pale bluish red. There were no ulcerations. The gastro-intestinal tract was otherwise negative.

So far then we have the ascites and the varices, which anatomically are more like cirrhosis of the liver than acute yellow atrophy. In fact the anatomical discussion here parallels the clinical very closely.

The anterior margin of the liver was seven cm. above the costal border. That is in favor of yellow atrophy, although we might find it with a markedly cirrhotic liver.

The right pleural cavity was about one-third full of thin pale fluid, as was the left. There were no adhesions. The apices of the lungs were negative. The tissue was spongy, pale to blackish red and saturated with blackish red frothy fluid,—hemorrhagic edema. There were no areas of consolidation. The pleura of the lower lobe of the left lung showed a thin coating of fibrin in places.

The heart weighed 243 grams, rather small for him. There was a flabby myocardium, macroscopically and microscopically negative.

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*Acute atrophy of the liver ? or acute hepatitis ? R. C. C.

The circulatory apparatus generally was negative. The blood was generally fluid, with very slight clotting.

The liver weighed 780 grams. Of course that is a very small liver. There were some old adhesions to the diaphragm and some on the inferior surface of the right lobe,—in favor of cirrhosis—but the surfaces elsewhere were fairly smooth, and that is in favor of yellow atrophy. The tissue generally showed no definite cirrhosis, but it had an underlying slight increase of consistence. The anterior margin was slightly irregular but in general rather smooth, and with a little wrinkling of the capsule; generally speaking in favor of atrophy. The tissue varied from pinkish pale brown to a slightly darker shade with in places depressed smooth dark red homogeneous areas such as we find in atrophy. The adhesions about the organ were slightly vascular and the peritoneum in the region showed slight injection of the vessels. That would be in favor of cirrhosis. There were a few adhesions about the gallbladder, but the bladder and bile ducts were frankly negative.

The spleen weighed 180 grams, which is not remarkable. In cirrhosis of the liver we expect to find a large spleen. The tissue of the spleen showed slight increase of consistence, but otherwise was negative.

The kidneys weighed 292 grams and showed no definite lesions macroscopcally or microscopically except a little acute degeneration of the tubular epithelium.

The liver tissue microscopically showed wide areas where liver cells were absent, with a remaining stroma showing a few islands of liver tissue here and there, probably regenerated liver tissue, and infiltrated with mononuclear cells and containing in places bile-duct-like structures. So that on the whole the condition was regarded as atrophy of the liver.

Dr. Cabot: Not particularly yellow. It is acute hepatitis rather than chronic—that is what you come to, isn't it?

Dr. Richardson: Toxic, with atrophy, not cirrhosis of the liver.

A Physician: What about varices in connection with yellow atrophy?

Dr. Richardson: Varices speak in favor of cirrhosis of the liver.

CASE 11232

Medical Department

A boy of seven who had been found deserted and starving in a tenement was brought to the hospital October 5. Nothing was known of his history except that he had been ill about a week.

Examination showed a fairly well developed, poorly nourished, sick looking child with marked rosary and prominence of the superficial veins of the chest and abdomen. The tonsils were somewhat enlarged. There were slightly enlarged glands in the neck and groins. The precordia showed slight prominence. The apex impulse of the heart was barely palpable in the fifth space just outside the nipple line, 2¼ inches from midsternum, corresponding to the left border of dullness. There was no enlargement to the right. The action was regular and slow. A loud harsh blowing systolic murmur was heard all over the precordia entirely replacing the first sound, loudest in the third and fourth spaces to the left of the sternum, transmitted deep into the axilla and into the vessels of the neck. The pulmonic second sound was accentuated and louder than the aortic second, which was also accentuated. The pulses were poor in quality. Both testes were undescended. The fingers were somewhat clubbed, the nails cyanotic. Examination was otherwise negative.

The child lived only a day in the hospital. His temperature rose from 98.4° to 101.9°. The pulse and respirations were not remarkable. The urine was normal except for a trace of albumin. The hemoglobin was 100%, the leucocyte count 26,000. Early the morning after admission he vomited and immediately stopped breathing. After fifteen minutes of artificial respiration the breathing began again, deep, slow, stertorous, of the air hunger type. During the artificial respiration vomitus was expressed through the mouth and nose. The type of breathing suggested the possibility of thymus—though no thymic enlargement could be determined—or of some metabolic or some central nervous affection. Air hunger breathing continued for about three hours. The respirations ceased before the heart.

Discussion

BY DR. MAURICE FREMONT-SMITH

NOTES ON THE PHYSICAL EXAMINATION

We have little lead as to what was the matter with the boy. He showed the signs of rickets, the rosary, the slightly enlarged superficial veins over the chest and abdomen and the mild general glandular enlargement.

The heart is not particularly abnormal. This murmur is more than we should expect to find as a functional murmur. An anemia of course would give us a systolic murmur, but at the base of the heart rather than at the apex. A congenital heart, which is brought into the picture for discussion by the clubbed, slightly cyanotic fingers, again would give us a harsh murmur at the base of the heart. The pulmonic second sound is said to be accentuated, which is significant if it was really accentuated; but the statement that the aortic second also is accentuated leads me to believe that neither was. It would be hard to explain an accentuated aortic second (except in a nephritic) in a child of this age.

The hemoglobin is very high for a child of this age—again if correct.

DIFFERENTIAL DIAGNOSIS

Perhaps it would be just as well to say a few words about the thymic possibility first. We know very little about the thymus, either its anatomy or its physiology. There has been for a long time argument as to what the normal size of the thymus is at the different ages, and at what time in the life of the individual the thymus retrogrades. Some now believe that the thymus reaches its largest size at the age of two years. Others believe that it increases up to the age of puberty, but it is true that after puberty the thymus decreases in size. Fifteen grams is the upper limit, probably, of the normal thymus weight. As to the physiological action we know rather little in spite of a great many attempts to find what it does in the body. Experiments have gone along two lines: (1) Taking out the thymus. In 1900 Close and Vogt did thymodectomies on a number of puppies, and they reported three definite changes occurring in these puppies after removal: (a) an increase in the weight and appetite of the puppy; (b) later a muscular weakness of the puppy, and (c) finally cachexia, known as thymic cachexia, in which there were marked changes in the osseous framework of the body and in the central nervous system.

These experiments stood until six years later, when a Japanese, Tongu, reported experiments in a much larger series of cases, and was unable to confirm any of these changes whatever. Park later was also unable to confirm any of the changes said to be secondary to the removal of the thymus. So at the present time we do not know what removal of the thymus does.

(2) Investigations were also carried on by feeding thymus, and one group of experimentors found a retardation in development of the frogs fed on thymus. They developed completely but very slowly. Later experiments failed again to confirm these earlier views. The explanation given was that thymus itself was an insufficient food and that feeding with it did not give these frog larvae sufficient nourishment for complete development.

It is not even known definitely that the thymus is a gland of internal secretion. It is best considered one of the lymphoid elements of the body and concerned with the production of lymphocytes and through them with the response of the body to certain infections.

The thymus is enlarged in three conditions. There is a simple hyperplasia of the thymus. There is hyperplasia of the thymus with hyperplasia of all the lymphoid tissue of the body, the condition known as status lymphaticus, in which the tonsils, the lymphoid ring about the mouth, the lymphoid glands all over the body, and the spleen are all enlarged. The third is sarcoma, neoplasm of the chest, primary in the thymus. There has been some question as to whether an enlargement of the thymus could cause the symptoms we find in children, the symptoms of asphyxia. However, in young children at the upper outlet of the thorax there is only two centimeters between the sternum and the vertebral column, and it can be seen that a rather small enlargement of the thymus pressing back on the veins and trachea might cause very definite disturbance.

The symptoms of thymus enlargement in children are dyspnea, attacks of suffocation, and stridor, usually inspiratory. The diagnosis of an enlarged thymus can be made by the very expert on percussion. There is a triangular-shaped dull area with the base running from the intersections of the clavicles and the sternum and the apex at the level of the second rib. If one finds this area increased one can assume thymic enlargement. The X-ray however gives a better means of diagnosis, and thymic enlargement can often be shown by X-ray.

Here we have a child who suddenly vomited and immediately stopped breathing. He may have stopped breathing first and then vomited from asphyxia, which I think is more likely. It is possible that he had aspirated foreign material on vomiting and that that foreign material was the cause of his later asphyxia. However, we should have expected a child who had been normal up to that time to try to cough up this material, and we have no mention of cough here.

The question of "metabolic or central nervous system affection" causing this air-hunger type of breathing has been spoken of here. If the boy had acidosis from starvation we should have expected him to show some signs of acidosis when he came in. We should have expected him to show dyspnea at that time, which he did not. A diabetic acidosis of course should have shown in the urine. It is hard to think of any central nervous system affection in a boy of this age that could cause a sudden onset of dyspnea.

I think it is very difficult to say what we are going to find here. I should feel that there was probably tumor in the chest. Whether this tumor is thymic enlargement or sarcoma, whether it be a part of a general state of status lymphaticus (of which we have a little indication here), I think it is impossible to say.

Dr. Cabot: I feel as if you had run the thymic hypothesis rather hard. In the first place he is seven years old, and we do not know that he has ever had an attack before. Isn't it true that most children troubled with thymus show a number of attacks and show them usually before seven?

Dr. Fremont-Smith: We have no history at all.

Dr. Cabot: He might have had many attacks. But really his dying moments are about all we have to suggest the thymus. I am struck by his clubbed fingers. That is a fact that we know, one which does not, so far as I know, go with thymic disease and which does go with such a lesion as is suggested by the murmur in his heart. That murmur seems to me pretty high up, the third space namely, replacing the first sound. In general we do not any of us pay much attention to systolic murmurs. But it seems to me we do, when they are as high up, when they replace a sound, and when they are associated with clubbed fingers in a child. So that I am inclined to think he had congenital heart disease, and that that is the main cause of death.

Now that does not in any way account for the air-hunger. I cannot account for that. But he was starving, and might not that be enough? You will say, Why didn't he show it when he first came in? I do not know any answer to that. We can imagine that the influences of starvation might have been on their way towards producing an acidosis but had not actually produced it until they were assisted by something or other which happened at the end,—what I do not know.

A Physician: Couldn't he have had a cerebral embolism from acute endocarditis?

Dr. Cabot: We have nothing to suggest that; he has no paralysis and he did not have a sudden coma. Certainly an embolism at seven is a very rare thing. I am willing to bet against it.

Dr. Richardson: Was there any temperature?

Dr. Cabot: Yes, there was. I do not see that we account for that in any way.

Dr. Fremont-Smith: No, we do not.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Congenital heart.
Aspiration of vomitus.
Thymus?

DR. MAURICE FREMONT-SMITH'S DIAGNOSIS

Mediastinal tumor?—(thymic?)

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesions*

   Abscess of brain (streptococcus).
   Leptomeningitis (streptococcus).

2. *Secondary or terminal lesions*

   Stenosis of the pulmonary valve (congenital).
   Incomplete closure of the interventricular septum.
   Dilatation of the heart.
   Right ventricular hypertrophy of heart.
   Chronic pericarditis.

3. *Historical landmarks*

   Chronic perihepatitis.
   Chronic tuberculosis of the mesenteric lymph glands.

Dr. Richardson: The age is given here as five. At the base of the brain there was frank meningitis. On the left side—the absolute boundary is not given, but I should think about in the left parietal region—there was a large abscess which extended into the left lateral ventricle,—frank abscess of the brain and leptomeningitis at the base, the organism streptococcus.

The skin and mucus membranes were purplish. The fingers were slightly clubbed.

The heart weighed 135 grams. The organ was not remarkable except for a congenital stenosis of the pulmonary valve and a perforation, incomplete closure of the interventricular septum, rather a common type of congenital condition.

Culture from the heart blood yielded streptococcus.

There was some slight chronic tuberculosis of the mesenteric lymph glands.

Dr. Cabot: How do you feel about the air-hunger? What caused it?

Dr. Fremont-Smith: I think he had increasing intravenous pressure.

Dr. Cabot: That is, he did not have any air-hunger; he had breathing mistaken for that.

Dr. Richardson: The bronchial and tracheal glands were negative. The thymus gland was present and weighed four and a half grams—negative.

CASE 11233

Surgical Department

An American wrapper of twenty-two came to the Emergency Ward December 23. No history of his health previous to December 20 was obtained.

That day he began to have fairly severe pain in the lower portion of the right thigh. He knew of no previous injury. The pain increased progressively and motion of the leg or pressure over the painful area caused great discomfort. Since the onset he had had no appetite. During the past two days he had vomited several times. His bowels had been constipated. His temperature had ranged between 101° and 103° while he was in bed at home.

Examination showed a well nourished young man appearing acutely ill and septic. The skin was dry. The teeth were poor. The lower portion of the right femur was very tender to light pressure, though there was no swelling or redness. The movements of the knee-joint caused excruciating pain in this area.

The temperature was 105°, the pulse 94, the respiration 30. The urine showed a slight trace of albumin and six to eight leucocytes per high power field. The leucocyte count was 28,000. The examination was otherwise negative.

Operation was done the day of admission. The following morning the temperature had fallen to normal but the patient looked very toxic. That evening and December 25 the temperature was up to 102°. The fluid intake was very low. The tongue was dry and the patient looked dehydrated and very toxic. On the 26th the temperature was down to 98-99.5°. He complained of pain in the right knee. On the following day the temperature rose again to 102°. The knee was swollen and fluctuant. Upon tapping with a needle thin fibrin-flecked material was withdrawn.

December 30 a second operation was done. Much pus was found in the knee-joint at the popliteal space. Two Dakin's tubes were placed in the knee, seven tubes above and three gauze wicks. A Hodgdon splint was reapplied. 30 c.c. of 1 per cent. sterile gentian violet was given intravenously. Smear of pus from the popliteal space showed clusters of Gram-positive cocci, probably staphylococcus. December 31 he was again given 30 c.c. of gentian violet intravenously. He was incontinent of urine and discharged many of his rectal taps. January 2 he was put on a Bradford frame. The gentian violet caused thrombosis of the veins above the elbow. A blood culture taken December 29 showed staphylococcus aureus in both flasks, and pus from the knee-joint and from the wound showed the same organism. There were multiple bright red erythematous areas, the largest a centimeter in diameter, just under the skin of the left arm and wrist, a few over the body and on the left leg. They were not tender and their color could be expressed. One was surmounted by a small vesicle. The tongue was dry and cracked. There was a hectic flush. The patient was depressed mentally. The lungs were clear except for fine crepitant râles at the bases. The heart action was rapid. January 5 the right base showed an area of dullness with bronchial breathing, with a few consonating coarse râles and slight egophony. Tactile fremitus was normal. There were also a few crackles at the left base. There was slight cyanosis. There was no cardiac involvement. He took fluids and voided well. The chest condition remained about the same. He grew very weak, however. The afternoon of January 8 the abdomen became distended and that evening he died.

Discussion

BY DR. EDWARD L. YOUNG, JR.

Dr. Cabot: What comes to your mind when you read that the patient "looked septic"? How does one recognize sepsis by looks?

Dr. Young: It is like the "acetone" and "uremic" odor. It is a thought that is secondary to the wish.

Dr. Cabot: But is there any such appearance?

Dr. Young: Not that I know of. We can have a sick-looking patient and not really have him septic, and we can have a sick-looking patient who is septic. I do not believe there is a characteristic look. I think the term "peritoneal facies" should be retained. I believe there is such a thing. I think a large percentage of the other phrases such as this and smelling special odors are not so. I think it means an abnormal look and an abnormal odor, but to try with second sight to name the cause I think is pretty doubtful, don't you?

Dr. Cabot: Yes. I do not know anything about it.

Dr. Young: Here again comes up the same question that we discussed lately, only that patient was definitely sicker and because of the multiple foci of infection presumably had a septicemia. Here is a man who comes in three days after the onset of what from the story we believe is an acute osteomyelitis of the lower end of the femur. The accepted treatment, of course, is incision and drainage. But I believe it is the best treatment to do as little as possible in draining that focus of infection. We believe that in the first forty-eight hours of an acute osteomyelitis the best thing is to incise through the periosteum, and after that drill holes into the medullary cavity to give drainage. This is presumably the treatment given here, because with a single focus of infection a patient can be as sick as this without having general septicemia, so I assume that is what was done.

Dr. Cabot: Is there anything else this can be besides osteomyelitis?

Dr. Young: It is three days old, entirely localized, with no swelling suggestive of trouble in other parts, and exquisite tenderness. It seems to me it must be an osteomyelitis. The record speaks of movements of the joints causing excruciating pain in this area. That is a little blind and I purposely disregard it because I do not know whether they mean that there was apparently pain in the knee-joint on motion or pain higher up because of the motion of the muscle over the septic area. But there is no further description of the joint, so I assume it was not involved.

Dr. Cabot: When they say tenderness over the femur they mean periosteal tenderness?

Dr. Young: Yes. But we come pretty close to the femur there.

Dr. Cabot: I do not suppose a bone as such is tender.

Dr. Young: When acutely infected there is something that causes great tenderness.

Dr. Cabot: Isn't the periosteum always involved?

Dr. Young: Yes. I think all of these acute cases are osteoperiostitis. The whole thickness is involved.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Acute osteomyelitis of the femur.

PRE-OPERATIVE DIAGNOSIS DECEMBER 23

Acute osteomyelitis of the femur.

FIRST OPERATION

Gas and ether. An eight inch incision was made over the outer aspect of the femur at the lower end and carried through the fascia lata and muscle to the femur. The periosteum was lifted for about six inches. There was a moderate amount of rather thin pus. Six or seven drill holes were made in the bone, releasing purulent marrow. The interstices between these drill holes were chiseled away and the wound packed with Carrell tubes and gauze.

Further Discussion

There was pus outside under the periosteum and pus inside.

The fluid intake is of the very greatest importance in these toxic cases. If the patient won't take it by mouth and cannot retain it by rectum it should be put in subpectorally. It is more important than any drug that can be given.

The tapping suggested to them that that had to be drained, so that a week later a second operation was done, to clean out the knee-joint.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Septic knee-joint.

PRE-OPERATIVE DIAGNOSIS DECEMBER 30

Septic knee-joint.

SECOND OPERATION

Ether. A small incision was made on each side of the patella at the most fluctuant area of the capsule of the knee-joint. A large amount of definitely infected fluid poured out. A Dakin tube was inserted in each opening, one below the patella and one in the suprapatellar pouch. The old osteomyelitis wound was explored with a finger and a pocket found at the lower end. More Dakin's tubes were inserted there.

Further Discussion

They are doing as little as they can to give drainage and not spread sepsis.

The last time we spoke of mercurochrome. I am likewise sure that gentian violet is not the drug to sterilize the blood in septic cases. There is no evidence that I know of, either laboratory or clinical, that shows that it does sterilize. There have been several cases that are highly suggestive, but there have been a larger number of failures—not enough successes to prove that there was anything more than coincidence. Following the last discussion I had four letters from men in different parts of the country, and all four were emphatic in saying that it had not done any good, although two of them sent me reports of cases where the patients had got well; but they were convinced that they had not got well because of the drug used.

I believe staphylococcus has a worse prognosis than streptococcus in the blood culture.

This erythema is always bad, simply because it shows multiple septic infarcts.

This is one of the cases in which, with the present state of our medical knowledge, I believe all that can be done is to open the focus of infection with as little trauma as possible, keep the patient quiet, conserve body temperature and make the body fluids as high as possible, and trust that the patient can throw it off.

It will be interesting to see if Dr. Richardson finds small abscesses in the places where they may come, in the kidneys, liver, lungs, muscles.

Dr. Cabot: This is the type of case in which we have occasionally found abscesses in the heart too.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Acute osteomyelitis, right femur (non-traumatic).
Septicemia.
Operation, incision and drainage of femur.
Operation, incision and drainage of right knee-joint.

DR. EDWARD L. YOUNG'S DIAGNOSIS

Acute osteomyelitis of the femur.
Septicemia.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesions*

Osteomyelitis of the right femur.
Purulent arthritis, right knee.
Septicemia, streptococcus and staphylococcus.

2. *Secondary or terminal lesions*

Purulent bronchitis.
Abscesses of the lungs.
Focal pneumonia.
Purulent pleuritis, right.
Serofibrinous pleuritis, left.
Abscess of the myocardium.
Mural thrombus, left ventricle.
Infarcts of the spleen and kidneys.
Soft hyperplastic spleen.
Abscesses of the kidneys.
Operation wounds.

Dr. Richardson: In the right pleural cavity there were several hundred cubic centimeters of purulent fluid, no old pleural adhesions; in the left cavity serofibrinous pleuritis. The trachea and bronchi contained much mucopurulent material. Here and there in the lungs were abscesses and also areas of pneumonia. Coverglass from the lungs showed streptococci.

Just beneath the papillary muscle in the left ventricle there was a small thrombus which rested over a small abscess in the myocardium. Coverglass from the abscess showed staphylococcus.

The spleen was slightly enlarged, soft, and showed several recent infarcts.

The kidney surfaces were dotted over with minute to small dark reddish areas the centres of several of which were yellow and contained pus,—a combination of infarcts and in places small abscesses.

From the bacteriological standpoint it is interesting to note a case in which there is double infection, staphylococcus and streptococcus. Culture from the heart blood showed in a rather spectacular fashion small colonies with fine grayish peripheral portions around a yellow central portion. The fine grayish rims yielded streptococci, the central yellow portion, staphylococci. I never happened to see them grow just like that before.

Dr. Young: It is pretty unusual to get both.

Dr. Richardson: In osteomyelitis the staphylococcus is the usual infecting microorganism.

Dr. Young: Someone questioned me when I said that staphylococcus aureus gives a worse prognosis than streptococcus.

Dr. Richardson: I think a staphylococcus septicemia is a very fatal disease.

Dr. Young: Certainly in puerperal sepsis we get streptococcus with recovery.

Dr. Cabot: And in venous thrombosis complicating ear disease we get recovery even though we get streptococcus in the blood. I think as you do that we get almost no recoveries from staphylococcus.

CURRENT LITERATURE

ABSTRACTORS

Gerardo M. Balboni
William B. Breed
Laurence D. Chapin
Austin W. Cheever
Randall Clifford
Ernest M. Daland
Horace Gray
Robert M. Green
John B. Hawes, 2nd
John S. Hodgson
Fred S. Hopkins
Chester M. Jones
Charles D. Lawrence
Tracy Mallory
Herman A. Osgood
Francis W. Palfrey
Edward H. Risley
George C. Shattuck
William H. Shedden
Warren R. Sisson
John B. Swift, Jr.
George G. Smith
W. T. Sherman Thorndike
Wilder Tileston
Henry R. Viets
Shields Warren
Bryant D. Wetherell

Symptom Analysis in Paretic Neurosyphilis

Menninger, K. A., and Menninger, W. C. (*Am. Jour. of Syph.*, 9:104, Jan., 1925), made a study of the initial and presenting symptoms in 166 cases of paretic neurosyphilis and summarized as follows: Mental disturbances are more frequently the initial symptoms of paretic neurosyphilis than neurologic, and very much more frequently the immediate cause for bringing the patient to the hospital. With the exception of memory loss and depression, the first mental symptoms in paresis are usually not those which ultimately bring the patient to the hospital. Irritability, disposition change, and minor conduct disorders are more apt to be disregarded or tolerated outside the hospital. Of the mental symptoms, emotional disorders are much the most frequent initial symptoms and intellectual disorders the most frequent hospitalizing symptoms. Of the neurologic symptoms, sensory function disturbances are the most frequent initial symptoms; as symptoms presenting upon hospitalization, cranial nerve disorders, sensory function disorders, and motor function disorders are all nearly equal in frequency. The more severe neurologic symptoms (convulsions and ataxia) which bring the patient to the hospital occur infrequently as initial symptoms. [A. W. C.]

A Study of Twins in Health and Disease

Murray, G. R. (*The Lancet*, Mar. 14, 1925), discussing twins in health and disease, gives evidence which shows that similar twins not only closely resemble each other in appearance and character but also in the finer details of structure and metabolism. It is therefore important to remember that where a malady develops in one of similar twins it is not unlikely to develop in the other. The healthy twin under these circumstances should be watched and any possible steps taken to prevent the onset of the same malady, or at any rate to treat it in its earliest stage.

[R. C.]

Incidence of Glycosuria During Pregnancy

Crook, A. (*The Lancet*, Mar. 28, 1925), found that of 548 patients, 166 had, at some time or other, during pregnancy, sugar in the urine—that is, a little over 30 per cent.; 23 patients had sugar in the urine in more than one pregnancy, but not in all—that is, about 4 per cent.; 8 patients had it in all their recorded pregnancies—that is, nearly 1.5 per cent. Of the 166 detections of sugar, 40 were first noted before the 21st week of pregnancy, while 126 were first detected between the 21st and 40th weeks, the week showing the largest number being the 28th; the next two highest being the 22nd and 30th weeks. In 24 cases (59 per cent.) it was definitely recorded to have disappeared before the end of the pregnancy.

[R. C.]

THE BOSTON
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MEDICAL SUPERSTITION

"Medical superstitions and saws," according to Dr. J. Allen Patton, medical director of the Prudential Insurance Company, "even when ridiculous on the face, die harder than any others. A man who wouldn't think of carrying a buckeye in his pocket as a charm, or the left hind foot of a grave-yard rabbit, will insist that his wife tie a piece of asafoetida on a string around the baby's neck to keep it from catching whooping cough or other contagious diseases."

Other examples are cited by Dr. Patton—red flannel underwear as a preventive of rheumatism and pneumonia, Indian turnips soaked in whiskey to cure tuberculosis. Most of us could add to the list. Fried onion poultices are still applied to relieve inflammation of the lungs, and whiskey is still the only infallible cure for snake bites. Babies' nails must be bitten and not cut, and sleeping with the moon in one's face and eating strawberries are still supposed to cause insanity.

The health educator has still a long row to hoe, for human anatomy and human physiology are still the subjects concerning which the average individual is most abysmally ignorant. Every man knows a little of business and a little of law, and in dealing with either is very prone to safeguard his own interests, even to the extent of showing a lively interest in the selection of the man he is to deal with and to whom he is to entrust his welfare.

When it comes to selecting a physician to whom he is going to entrust his most priceless possession the election is made either entirely at random or on qualifications that may be entirely irrelevant. With such actual ignorance and with such general belief in their own knowledge of the subject of health and sickness, small wonder that our lay brethren are unable properly to choose their medical counsel.

Medicine has long been surrounded by a smoke screen of mystery that hid from the layman both its truths and its falsehoods, and behind the covers, preying on the gullibility of the multitude, quackery and charlatanry developed.

Today we are trying to remove the smoke screen that our predecessors laid down but the layman himself, eager to believe anything but the truth about his physical welfare, interposes the greatest obstacles.

"Know thyself," Socrates commanded his pupils, and "know thyself" the modern physician beseeches his patients, but too often, on this subject alone, they prefer the dramatic and spectacular to the unassuming and often unpleasant truth.

THE PEOPLE'S DANGERS

Believing as we do that the application of well accepted forms of preventive and therapeutic medicine has brought comfort, efficiency and longer life to a very large proportion of the inhabitants of this world, we must regard the activities of the anti-medical organization with great concern. We cannot understand the attitude of many apparently intelligent persons toward scientific medicine.

The unsolved problems of disease, the disappointments and sorrow associated with death and the comparatively few instances of error or bad behavior exhibited by physicians are perhaps responsible in a degree for some prejudices which are harbored in the minds of a proportion of the opponents of medicine. Another group perhaps reacting to exaggerated recitals of the cruelties of vivisection and societies built on false reasoning for the purpose of antagonizing some of our most cherished beliefs unite with each other and, acting under a common purpose, engage in campaigns with the intention of weakening confidence in the practice of medicine and destroying the means by which some of our most potent weapons are manufactured.

In the address of the President of the American Medical Association there appears a recital of the outstanding benefits conferred by medicine. Beginning with anaesthesia and antisepsis in revolutionizing surgery, and taking up the reduction of the death rate in tuberculosis, the cure of syphilis, the prevention of typhoid and typhus fever, the conquest of yellow fever, the light thrown on the etiology of disease and the cures wrought by radium, X-ray, transfusion of blood, antitoxins, vaccines and the early detection of disease in its curable stages by periodic examinations the achievements of scientific medicine are set forth. Unfortunately his address will be read by few of the laity. As broadcasted it may have reached a considerable number.

We wonder why the great outstanding demonstration of preventive medicine, vaccination against smallpox, fails to meet with more general approval,—especially since the preponderance of medical opinion is recorded in its favor.

The combination of the anti-medical and, we might properly say, anti-health forces constitutes one of the greatest dangers to the human race, far exceeding the effect of wars, for the unspeakable horrors of great conflicts are not continuous. Most diseases, however, relent only when their power is weakened or overcome by appropriate corrective measures, or when individual resistance is established or the soil exhausted.

Physicians warn the people of the dangers and seek through education or the enactment of laws to establish suitable control but meet discouraging responses along certain lines. For example, the Federal Department has reported that for one week in May last seven hundred and thirty-one cases of smallpox were recorded in the United States. Probably ninety per cent. of these cases could have been prevented. During the year the number will be many times larger and many deaths will be caused, but the objectors to vaccination will hamper the efforts of physicians and promote distrust of vaccination in the minds of the people. This is only one illustration, but it forces the conviction that we have failed to impress the public with the common dangers of disease. The solution of the problem will come in the development of some way by which the people will be led to accept and apply correct information.

The American Medical Association has sought to meet the need by the publication of *Hygeia*. This organ has been useful so far as it is read, but the masses will not we fear have any sustained interest in a health journal.

The opponents of medicine are using the columns of sensational magazines which are read by many more people than will buy *Hygeia*. A journal which will find its way into the homes of a million people with material like that published in *Hygeia* scattered through its pages will carry messages to receptive minds.

The Massachusetts Medical Society

THE ANNUAL MEETING

The One Hundred and Forty-Fourth Anniversary of the Massachusetts Medical Society is at hand. The exercises will be held on next Tuesday and Wednesday, June 9 and 10, according to the program previously announced. Among the papers are two which will interest every Fellow, The Shattuck Lecture, on Tuesday evening, by Dr. Hans Zinsser, entitled "The Study of Immunity in its Relations to the Problems of Practical Medicine," and the Annual Discourse, on Wednesday noon, by Dr. David Cheever, entitled, "The Physician as Custodian of the Health of the People, But Who Shall Guard the Custodian Himself?"

The Annual Dinner will be served in the Ballroom of the Copley Plaza Hotel on Wednesday, June 10, at 6.30 P. M. Return postcards have been mailed to each Fellow requesting a reply as to whether or not he will be able to attend the Dinner. Those who have not already replied are urged to do so at once. The Committee of Arrangements also requests the Fellows to kindly purchase their dinner tickets at the information desk early in the session. The Hotel must have the exact number of dinners to be served, in advance, and the Committee desires to make this estimate as accurate as possible in the interest of economy for the Society.

The speakers secured by the President for the annual dinner June 10 at the Copley-Plaza are:

Governor Alvan T. Fuller, Right Reverend Charles E. Slattery, Bishop of Massachusetts; Dr. James J. Walsh, Prof. of Physiological Psychology, Cathedral College and College of the Sacred Heart, New York City, Extension Professor, Fordham University; Mr. Sherman L. Whipple.

ANNUAL MEETING OF THE COUNCIL

The annual meeting of the Council will be held in the hall of the building of the John Hancock Mutual Life Insurance Company, 197 Clarendon Street, Boston, on Tuesday, June 9, 1925, at 11.45 a. m.

BUSINESS

1. Reports of Standing Committees in order of appointment. (See inside front cover of program.)
2. Petitions for restoration to the privileges of fellowship.
3. Reports of Special Committees.
4. Election of officers and orator for 1925-26, by ballot.
5. Election of Standing and Special Committees for 1925-26.

6. Appointment of two delegates and two alternates to the House of Delegates, American Medical Association, for two years from June 1, 1925.
7. Resolutions passed by the Middlesex East District Medical Society advocating the limitation of the use of anesthetics to the medical profession.
8. Incidental Business.

WALTER L. BURRAGE, *Secretary*.

Councilors are reminded to sign one of the attendance books before the meeting.

The Cotting Lunch will be served immediately after meeting.

READMITTED

Dr. McIver Woody, of 248 Pearl Street, Springfield, has been readmitted to fellowship by The Censors of The Hampden District.

REMOVAL

DR. JOSEPH RESNIK's office is now located at 536 Commonwealth Avenue, Boston.

MISCELLANY

THE TUMOR CONSULTATION CLINIC AT THE MASSACHUSETTS GENERAL HOSPITAL

A PLAN has recently gone into effect at the Massachusetts General Hospital, Boston, whereby the facilities of that institution are to be put to the fullest possible use in the diagnosis and treatment of cancer and other tumors.

The Clinic will provide:

1. Consultation in regard to diagnoses and suggestions for treatment involving surgery, radiation, or other methods or combinations of methods.
2. An effective follow-up system for all cancer cases discharged from the surgical wards of the hospital.
3. Opportunity for the study of groups of cancer cases in the out-patient department.
4. A degree of standardization of the treatment of certain types of cancer, where such a standardization is possible.
5. A more complete utilization of the resources of the pathological department of the hospital in relation to cancer cases.

The Tumor Consultation Clinic is organized with a staff composed of members of the hospital staff detailed to this service. There is a group of nearly twenty physicians to cover the special subjects or to act as consultants.

The clinic will be open every week-day with the clinic secretary and one or more members of the staff present to deal with any case that may be referred. There will be special clinic days for (*a*) blood diseases; (*b*) general surgical cases, including breast, bone, face and mouth cases and miscellaneous; (*c*) superficial skin lesions; (*d*) nose, throat and esophagus; (*e*) general cases, as eye and rectal cases; (*f*) gynecological and g. u. cases.

Special emphasis should be laid upon the fact that, with the exception of follow-up work, which it is planned to make obligatory, the services of this clinic will be supplied only at the request of the out-patient or house surgeon under whose care the individual patient comes. It is hoped that the staff may be able to demonstrate the value of this consultation service in such a way as to insure reference to the clinic of a sufficient number of patients to make the service of value.—*Bulletin Am. Soc. for Control of Cancer.*

RECENT DEATH

KIDDER.—Word has been received of the death in Woodstock, Vt., of DR. FRED THOMAS KIDDER, president of the Vermont State Board of Health. He died May 10, 1925, at the age of 66. He was a graduate of the University of Vermont Medical Department in 1883, having first taken an A.B. at the same institution. He had been a member of both the State House of Representatives and the Senate, representing his native town, Woodstock. At the time of his death he was president of the Woodstock Hotel Company and the Woodstock Electric Company and a trustee of the University of Vermont. In 1912 he was president of the Vermont State Medical Society. He is survived by his widow, who was Ellen S. Warren.

OBITUARY

GEORGE ANDREW BANCROFT

1865—1925

"Honour the physician!" This injunction was obeyed to the letter at the funeral of Bancroft Sunday, May nineteenth. The church was filled to overflowing. Many who could not get in waited for the end of the service in order to file past the coffin in front of the flower embowered chancel, the procession lasting a good half hour, a very impressive token of the respect and affection in which George Bancroft was held, and his foremost place in the community.

Bancroft was born in Lancaster, attended the High School, then began the study of medicine, for which he felt an irresistible urge, at the Harvard Medical School. He borrowed money to get his M. D., afterward repaying it with interest. Soon after graduation in 1890, he finally settled for life in Natick, rapidly and inevitably sought for and called upon to the limit of his time and strength. The latter was unusual, and surpassed only by his enthusiasm for and love of his work. In the effort to solve the problems, often of the highest complexity, which confront the practitioner, the patient himself, his individuality, his hopes and fears, were never forgotten or slighted. Resourceful and self-reliant as he was by nature and necessity, he was always anxious to avail himself of the possibly greater knowledge or of the special skill of a suitable consultant, who often learned fully as much as or more than he taught. He gave his best to and strove to secure the best for his patient, growing, himself, all the time. It has been my happy lot to meet many practitioners. I never met a better than Bancroft, and few as good.

His physique and temperament, united with his love for his job, gave him an enormous capacity for his work. After a motor took the place of his stable of horses I remember asking him whether the change gave him more time at home. He answered, "No, my radius is wider." Recalling him and a group of similar men who had not been through college before studying medicine, one is tempted to question the wisdom of the requirements of an A. B. or its equivalent now exacted before entering most of the leading medical schools. An A. B. degree may represent very little. The earnest student will surmount all obstacles. Possibly the time will come when the medical school will have a wider front door for entrance, and an even wider rear door for the exit of the unfit. "The man's the gowd for a' that," and George Bancroft was a strong man armed *cap à pie* who kept his castle until overcome, but not conquered, by untimely death through painful, but, happily, not very lingering disease.

He was an honor to manhood as well as to our profession. Vitality and understanding poured from him in a seemingly inexhaustible stream. An understanding heart he had, for which Solomon asked God as the highest good. His place will be taken; it is not likely to be filled.

F. C. S.

From "Under the Old Elm," James Russell Lowell. Read at the funeral service of Dr. George Andrew Bancroft, held in Unity Church, Natick, Mass., on Sunday, May 17, 1925:

The longer on this earth we live
  And weigh the various qualities of men,
Seeing how most are fugitive,
  Or fitful gifts, at best, of now and then,
  Wind-wavered corpse-lights, daughters of the fen,
The more we feel the high stern-featured beauty
Of plain devotedness to duty,
  Steadfast and still, nor paid with mortal praise,
But finding amplest recompense
For life's ungarlanded expense
  In work done squarely and unwasted days.
For this we honor him, that he could know
  How sweet the service and how free
Of her, God's eldest daughter here below,
  And choose in meanest raiment which was she.

Placid completeness, life without a fall
From faith or highest aims, truth's breachless wall.
  Surely if any fame can bear the touch
His will say "Here!" at the last trumpet's call,
  The unexpressive man whose life expressed so much.

CORRESPONDENCE

THE MISSION HOSPITALS OF INDIA

Editor, Boston Medical and Surgical Journal:

Your readers may be interested in a brief account of the Mission Hospitals of India, a number of which I have visited this past winter.

These are maintained in part, and wholly owned as to title, by mission organizations in England, America and Australia. Their primary purpose was as an adjunct to the work of evangelization. but the medical work has grown to be so large that it is impossible in most instances for the medical department to do very much direct religious work, and therefore this in many hospitals and dispensaries is an adjunct service, which because of language difficulties is mostly cared for by native assistants. It is an important subsidiary of the medical work, but does not devolve as much on the medical staff as formerly. Most dispensaries have evangelistic workers who are in attendance in the waiting rooms during the treatment hours and who also visit the hospitals.

Mission hospitals are of three distinct classes as to staff and cases treated. There are hospitals for men and women with only men physicians as staff, hospitals with both men and women on the staff and caring for all kinds of cases, and hospitals for women and children where the staff are wholly women and where men are not allowed, either as physicians or patients.

While there are hospitals for women and children only, in South India, the particular field for these is in the Mohammedan country of North India. In the south the prejudice against men physicians has almost disappeared, and it is a prejudice which government hospitals do not recognize.

The larger cities have fairly good government hospitals, but there is as yet no competition between the mission hospital and the government hospital, and the day is far distant when the latter will so far cover the medical needs of India as to make the former no longer necessary.

All mission hospitals endeavor to be self-supporting, and, considering the poverty of the people and the rarity of large fees, succeed to an admirable degree. Most of them are from half to two-thirds self-supporting, and the one at Miraj, which has a reputation for good surgery extending all over India and therefore a fairly well-to-do clientele in part, is able to show a balance of profit.

The equipment is, judged by western standards, usually inadequate as to water supply, laundry facilities and cooking requirements. This latter is totally different from the west, due to the customs of caste. Mission hospitals furnish food only to a limited number of patients. The others have the cooking done by friends or members of the family in corners of small rooms detached from the hospital and without chimneys and known as cook rooms, or on the verandas, or in the yards of hospitals, or even in some cases in private rooms where provision has been made for this. A few bricks or stones form the rude stove, and twigs or charcoal furnish the necessary heat for the cooking of the food, consisting mainly of rice and curry. The cooking utensils are furnished by the patient and are very simple, being usually a kettle and a small brass bowl. As the high caste person will not eat anything prepared by a low caste person it is necessary for each hospital to have a high caste cook for such as are fed by the hospital. This feeding problem is not nearly as much of one as might be supposed, since when the patient goes to the hospital in his bullock cart he takes his whole family with him, and his food as well, and for the animals also, which are often tied up to the cart in the hospital yard. The family sleep in the cart, or more often on the floor of the patient's room. I have myself seen nine persons sleeping in the room occupied by two patients—seven of them on the floor, of course. In this same hospital, on making rounds one night, the doctor found the family goat tied to the bed. There was no one at home to leave the goat with, so he had to be brought.

This close contact of friends is not in accord with western practice, but seems necessary, especially in hospitals away from large towns. In one of my own operations I objected to the presence of two persons in the operating room who manifestly did not belong to the operating room force. I was told they were friends or relatives of the patient and that they would cause no trouble, and that the child would take the anesthetic better and be controlled easier if they stayed, and such was the case.

Because of the glaring sunshine all India hospitals have wide verandas and are never over two stories high, and usually only one. In order to get the proper circulation of air the rooms have ceilings often fifteen or twenty feet in height, with small cross current windows near the top.

As there is no central heating system there is no constant supply of hot water for general use, or of steam for sterilizing. All this has to be provided by charcoal or, what is more usual, by pressure kerosene stoves of Swedish manufacture. These latter have many disadvantages, being frequently out of order, but are the source of heat for most hospitals, and when working well furnish a rapid, intense heat at low cost.

The operating rooms and sterilizing facilities are usually not much behind those of hospitals working under more favorable conditions. I have always found an ample supply of sterile gloves, dressings and gowns, and a fairly good supply of instruments. As the European personnel are almost without exception former residents of the best class of hospitals, the operating rooms, so far as technique is concerned, are fairly comparable to our own. Well-trained native assistants are available both as to nurses and doctors, and many hospitals have training schools for nurses with the same courses as elsewhere, and with an American or English graduate nurse in charge.

The laboratory side of medicine is rather neglected, more from lack of time than from lack of appreciation of its importance.

Few hospitals are supplied with adequate bathing or sanitary facilities, not only from lack of water but also from lack of any appreciation on the part of the Indian of its necessity. Most of the provision for excreta consists of a squat over a hole in the ground or over a pail introduced from behind the closet room. These are supposed to be cleaned several times a day and the room cared for by persons of the lower or "sweeper" caste. The system is far from ideal. Hindu customs in these matters are quite different from our own, as the following quotation from the Abbe Dubois' authoritative book on "Hindu Manners, Customs and Ceremonies" shows (edition 1906, Strict Rules of Hygiene, page 239):

"XVII. Taking a handful of earth in his left hand, he will pour water on it and rub it well on the dirty part of his body. He will repeat the operation, using only half the amount of earth, and so on three times more, the amount of earth being lessened each time.

"XVIII. After cleansing himself thus he will wash each of his hands five times with earth and water, beginning with the left hand.

"XIX. He will wash his private parts once with water and potter's earth mixed."

Footnote by the Abbe: "It is only the left hand which may be used on these occasions. It would be thought unpardonably filthy to use the right hand. It is always the left hand which is used when anything dirty has to be done, such as blowing the nose, cleaning the ears, the eyes, etc. The right hand is generally used when any part of the body above the navel is touched, and the left hand below that. The custom of carefully washing the dirty part after answering a call of nature is strictly observed in every caste. The European habit of using paper is looked upon by all Hindus, without exception, as an utter abomination, and they never speak of it except with horror."

Western toilets are being introduced in places, but patients have to be trained to use them and if not watched are quite likely to stand on the seat and use the native postural method, with frequent soiling of the seat. With abundant water supply the native squat is probably the preferable method. Throughout the east it is customary to use any piece of ground for toilet purposes. One hospital I visited allows its ambulatory patients to go to a narrow brook just outside the rear wall. The odors from the immediate vicinity show this method to be far from ideal, even though fouling the brook seems harmless since it empties into an adjoining rice field. This disposal of human excreta in a safe and sanitary manner is a problem which faces all institutions in the east, especially where many children are concerned.

Electricity with proper light capacity available day or night and with X-ray installation is slowly coming, being hampered by the matter of expense, since each unit must be self-contained. Many hospitals would welcome the gift of outfits of this character.

The mission hospital varies in size from fifty to two hundred beds, yet, unlike a western hospital, there is usually no actual capacity limit, since patients can be put on the verandas, and beds are by no means necessary, a mat on the floor being quite sufficient if beds are absent. The use of mattress beds is an acquired habit. Plain boards laid lengthwise on a bed frame and braided cords or canvas strips strung from the frame are very common. The Scripture term, "Take up thy bed and walk," is still applicable, though the mattress bed is winning its way.

The preliminary preparation of patients for operation deemed so necessary in our hospitals except in case of emergency is often neglected. The Indian patient seeks the hospital for an operation and unless that operation can be done at once is inclined to return home. He often comes a long distance with his entire family, and if he is put to bed and time taken for the usual tests is quite likely to change his mind and go home again, hence the mission surgeon has to be an expert in an accurate and rapid diagnosis as to condition, and must form an instant decision as to what is best to be done. The results have to be good also, otherwise the hospital quickly gets a bad name, for news seems to travel faster in Indian villages where there is neither newspaper nor telephone than where both are available. It is also hard to hold patients in the hospital for the necessary after-treatment.

Most mission hospitals are deficient in the matter of records, simply because the responsible persons have not the time or the proper system or capable assistants for the work. At the medical school in Vellore records of operations are dictated to a student as the operation proceeds, but this was not the case in any of the other hospitals visited. When it is considered that the chief surgeon is also superintendent, buyer and general manager of a good-sized hospital, including building and grounds, in addition to doing an amount of actual surgical and medical work which few surgeons in American hospitals accomplish, this lack of good records is not to be wondered at. Curiously enough, however, one of the busiest surgeons I met, and who had in addition to a large medical and surgical work the care of a leprous hospital and a tuberculosis hospital and was at the same time editing a missionary medical journal appearing bi-monthly, had one of the best systems and most complete records of any hospital visited. Few men or women have this man's capacity for work.

There are two classes of medical schools in India graduating two classes of physicians. In the one the standards are substantially those of England and the requirement is for a university training before studying medicine and for four years in the medical school. Such schools are at Lahore, Calcutta, Bombay and Madras for men, and at Delhi for women. These schools qualify for the degree of M.B.—Bachelor of Medicine. It usually happens that students and graduates from these schools do not want to go into the smaller towns and villages or work in mission hospitals where the salary is relatively small. To help solve the latter problem the Indian government allows certain medical schools to give an inferior course requiring for entrance less university training by two years and a medical course of a three years' minimum, four years preferred. The degree given is called L.M.P.—Licensed Medical Practitioner. This degree is not given by the medical school, but after government examination at Madras, Bombay, Calcutta or Lahore. It is in three schools of this grade, two for women and one for men, that I have given lectures and clinics and performed operations this past winter. While schools of this grade are not ideal their graduates do serve a need, and there are not and will not be for a long time enough graduates of the M.B. class to serve the needs of India. All three of these schools are attached to large mission hospitals and have a competent faculty.

In the case of women the L.M.P. degree seems to me to be sufficient, since it is only rarely that the Indian woman physician becomes a surgeon, for after a longer or shorter time she usually marries and eventually drops out of medicine, except in so far as she carries on a dispensary for women and children, including obstetrics, in her town or village, and for this she has usually had sufficient training. If the three years additional study are required many a woman who would have studied medicine and been very useful in her community will have been deprived of this privilege on account of the extra time and expense required. In the case of the men the situation is different, and I would favor the requirement of the M.B. degree for them in all cases. From a purely intellectual standpoint the Indian student is very capable and will absorb the contents of a textbook as a blotting paper absorbs ink, and is able to repeat it almost word for word. He is, however, much less facile with his fingers and much more given to passing on an order to someone else than executing it.

And what of the results obtained in these hospitals? So far as I could ascertain they are as good as those obtained in our own hospitals, and better than would be expected, considering the difficulties under which the work is done. This statement applies to abdominal and major surgery and to medical cases and eye work, but does not apply to affections of the ear, nose and throat. The reason for this is that practically none of the hospital surgeons had any training in this branch and had had no time to take it up, though recognizing the need.

The amount of abdominal and major surgery is large; there are many hernias, a great deal of reparative cosmetic surgery, many cases of malignant disease, and a good deal of reparative work following bad midwifery. In one hospital in South India the associate surgeon had performed 81 gastro-enterostomies and 50 operations for cancer of the jaw in seven months, and when I was there had an entire ward filled with gastro-enterostomy cases.

A class of cases unusual with us but common in every mission hospital in South India is the result of being gored by bullocks, the universal animals of work and locomotion. Dehorning of cattle is not practised, and the cattle, especially the water buffalo, have very long and sharp pointed horns. This goring may be quite accidental on the part of the animal. After these wounds occur long journeys may have to be taken, and if the abdomen is implicated the patient often arrives at the hospital in very bad condition. Extensive removal of injured intestines is often required and fatal results are not uncommon.

In one hospital which I visited and to which was attached a medical school, the week's work of the chief surgeon began on Sunday morning with personal rounds over the entire hospital, a large one, seeing every patient. This was followed by a religious service in one or more wards and a Sunday school for the students. On all the other mornings of the week he held class from eight to nine, and then from nine to one conducted clinic, with always more patients than could comfortably be seen. On two afternoons of the week there were eye operations and other minor operations from two to four or five o'clock, and on one afternoon he drove some thirty or forty miles to one or more out stations, where patients were seen and operations performed up to ten o'clock in the evening, when there was the long drive back. On the other three afternoons, on days alternating with the preceding, he operated in the general operating room, doing each time from sixteen to twenty operations, many of them long ones. He began at two P. M. and during the period of ten days when I was there never finishing or coming home to his dinner earlier than ten P. M. And this, according to the records of this hospital, is the regular routine and has been for years. There is an associate who has the same routine on the odd days. They do not assist each other, and each has his own group of native assistants.

This clinic is open to any American student who would like to become proficient in surgery and who has already had a surgical interneship in an American or English hospital. The range of work is very great. A year's service can be had here without obligation to enter the missionary service. Quarters and food would be furnished, but transportation to and from India would have to be paid by the student. There would be no salary nor would the language have to be acquired. I will furnish details to anyone interested.

To one with the spirit of altruism and a love for the medical profession, and who is willing to spend his life in advancing the cause of medicine and of helping humanity, the medical mission field offers a fascinating career. The money rewards are sufficient for comfortable living, with provision for old age, but nothing more. The material for research is ample.

Sincerely yours,
Geo. L. Richards.

THE PUBLICATION OF A COMMITTEE'S REPORT

Boston, May 23, 1925.

Editor, Boston Medical and Surgical Journal:

Dear Sir—Early in 1924 there was undertaken by the Public Health Committee of the Massachusetts Medical Society an investigation with reference to the probable value of conventional methods for the control of common communicable diseases. The results of the investigation with charts make a report of considerable size, but it is believed that it is a work distinctly creditable to the Society and that it should be published in some form.

The Committee has, also, now practically ready for publication a manual prepared under its direction and intended to meet the practical needs of the average practitioner in making so-called health examinations.

It is intended by the Public Health Committee to place before the Council on June 9 the matter of the publication of these reports.

Very truly yours,
Victor Safford, *Chairman.*

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

Diseases Reported for the Week Ending May 23, 1925

Chickenpox	134	Ophthalmia neonatorum	24
Diphtheria	92	Pneumonia, lobar	100
Dog-bite requiring anti-rabic treatment	8	Scarlet fever	208
Dysentery	1	Septic sore throat	1
Encephalitis lethargica	1	Syphilis	39
Epidemic cerebrospinal meningitis	1	Suppurative conjunctivitis	6
German measles	307	Tetanus	1
Gonorrhea	77	Tuberculosis, pulmonary	132
Hookworm	1	Tuberculosis, other forms	23
Influenza	7	Tuberculosis, hilum	1
Measles	834	Typhoid fever	12
Mumps	66	Whooping cough	168

CONNECTICUT WEEKLY MORBIDITY REPORT

Week Ending May 16, 1925

Diphtheria	35	Chickenpox	53
Last week	19	Conjunctivitis inf.	3
Diphtheria bacilli carriers	14	German measles	77
Smallpox	2	Influenza	6
Last week	0	Mumps	11
Scarlet fever	110	Paratyphoid fever	1
Last week	96	Pneumonia (broncho)	17
Typhoid fever	3	Pneumonia (lobar)	38
Last week	4	Septic sore throat	2
Measles	307	Tuberculosis (pul.)	32
Last week	116	Tuberculosis (other forms)	5
Whooping cough	103	Gonorrhea	20
Last week	118	Syphilis	34

NEWS ITEMS

THE PRESIDENT-ELECT OF THE AMERICAN MEDICAL ASSOCIATION

Dr. Wendell P. Phillips has been elected president of this, the largest medical organization in the world, by unanimous vote.

This unanimity is probably unique in the history of the association and is a well merited tribute to the sagacity and loyalty of Dr. Phillips. His influence has been apparent for many years in shaping the policies of the organization. His dignity, courtesy and breadth of vision assure the medical profession of a leadership to which all may subscribe.

We predict an era of great progress under his administration.

APPOINTMENT OF DR. WORCESTER

Dr. Alfred Worcester has been appointed as Henry K. Oliver Professor of Hygiene of Harvard University. This professorship was founded in 1914 and was administered by Dr. Roger I. Lee until he resigned in 1924. Dr. Worcester will also serve as head of the Department of Hygiene and Physical Education. This means that Dr. Worcester will retire from private practice and will not become an overseer of Harvard College, although he had been nominated to occupy this position. This appointment will give Dr. Worcester a large opportunity to exercise his unusual ability and interest in his fellow men.

PROMOTIONS AND APPOINTMENTS IN THE FACULTY OF THE SCHOOL OF MEDICINE OF BOSTON UNIVERSITY

Milo C. Green, M.D., has been appointed registrar of the School of Medicine of Boston University to succeed Dr. Wesley T. Lee, resigned, it was announced by Dean Alexander S. Begg of the school. Dr. Green has been for several years on the faculty as assistant professor of applied anatomy and clinical instructor in surgery.

Sixteen faculty promotions and fourteen additions to the faculty were announced at the same time by Dean Begg. Promotion to the grade of associate professor was awarded Joseph Chandler, Ph.D., chemistry; William A. Ham, M.D., clinical obstetrics; Samuel R. Meaker, M.D., gynaecology; and William D. Rowland, M.D., ophthalmology.

Promotions to the grade of assistant professor went to Albert S. Briggs, clinical medicine; Edward S. Calderwood, M.D., clinical medicine; George N. Lapham, M.D., diseases of the chest; John A. MacMillan, M.D., dermatology; Arthur H. Ring, M.D., neurology; Edwin W. Smith, M.D., clinical obstetrics; William K. S. Thomas, M.D., clinical surgery; Ralph C. Wiggin, M.D., genito-urinary surgery.

The following were promoted to the grade of instructor: J. C. V. Fisher, M.D., obstetrics; Joseph Goldman, M.D., bacteriology and immunology; Jacob M. Masters, M.D., pharmacology; C. Wesley Sewall, M.D., obstetrics.

New appointments included the following instructors: Bernard Appel, M.D., syphilis; Marion H. Cowperthwaite, A.B., histology and embryology; John A. Foley, M.D., clinical medicine; Marjorie Fulstow, M.D., neuro-pathology; William D. Reid, M.D., cardiology; and Louis Scheller, M.D., pediatrics.

Dwight O'Hara, M.D., was appointed lecturer on therapeutics.

Assistants appointed were Max Baker, M.D., medicine; Thomas E. Connor, M.D., medicine; Joseph Goldman, M.D., medicine; James C. Janney, M.D., obstetrics; Leighton F. Johnson, M.D., applied anatomy and laryngology; Harold L. Leland, M.D., genitourinary surgery; and Barnet M. Wein, M.D., clinical otology.

DR. HUGH CABOT and Mrs. Cabot have sailed for Europe. An extended visit to Great Britain and the Continent has been planned.

CENTENARY OF JEAN-MARTIN CHARCOT AND SIXTH INTERNATIONAL NEUROLOGICAL REUNION—The centenary of Jean-Martin Charcot will be celebrated in Paris during June of this year, according to present plans. Charcot became physician to the Salpêtrière Hospital in 1862 and gradually built up the world-famous neurological clinic. The centenary organization committee includes the leading statesmen and scientists of France. The Academy of Medicine, the Faculty of Medicine and the Paris Society of Neurology will hold commemoration ceremonies early in June. The Sixth International Neurological Reunion will be held simultaneously. This is the 25th anniversary of the foundation of the society. It is expected that many neurologists from foreign countries will atteni.

GIFT TO THE PRESBYTERIAN HOSPITAL, NEW YORK CITY—The Presbyterian Hospital, New York City, has received $200,000 from the executive committee of the Dr. Andrew J. McCosh Memorial Association. $100,000 is to be used to construct the Dr. Andrew J. McCosh operating amphitheater in the new Columbia-Presbyterian Medical Center. The other $100,000 is for the establishment of the Andrew J. McCosh Memorial Fund. It is intended that the income from the Memorial Fund be used for the increase and diffusion of medical and surgical knowledge. The board of managers of the hospital will direct the use of this income.

DR. HENRY M. HURD celebrated his 82nd birthday May 3. Dr. Hurd was the first president of the Johns Hopkins Hospital. He is now emeritus professor of psychiatry at the Johns Hopkins University.

A CHAIR OF TROPICAL SANITATION AND HYGIENE is to be established at the Imperial College of Tropical Agriculture at St. Augustine, Trinidad. This has been made possible by a gift of £1000 a year for five years, contributed by the International Health Board.

VIOLATOR OF NEW DAYTON LAW ARRESTED —J. T. Scopes, science teacher in Rhea High School in Dayton, Tenn., was recently arrested, according to a press dispatch. It is claimed that he violated the new Dayton law prohibiting the teaching of evolution in the State public schools.

MENTAL STATUS OF CRIMINALS—Are criminals better equipped mentally than the rest of the world? An extensive investigation carried on by Dr. Carl Murchison, professor of psychology in Clark University, would seem to prove that they are. Dr. Murchison based his conclusions on the comparative figures obtained by the examination of some 1000 criminals. Twenty-nine out of every 100 criminals had an intelligence level of C as measured by the Alpha army test. The proportion of C men found in the white draft was practically the same. Thirty-nine of every 100 criminals had an intelligence above C and 32 below C. Thirty-three army men were above C and 38 below.

NOTICES

EXHIBIT OF THE REGISTRY OF BONE SARCOMA CASES

To Whom it May Concern

I am planning to arrange in the Warren Museum at the Harvard Medical School from Monday, June 8th, to Saturday, June 13th, inclusive, an exhibit of the Registry of Bone Sarcoma cases as well as an exhibit of the bone sarcoma specimens in the Warren Museum which have been re-studied by X-ray. The exhibit will be open the whole week with the Assistant Registrar in attendance from 9 a. m. to 5 p. m. I shall myself be there as much as I can during the week and will be glad to demonstrate the collection to individuals, groups or societies during that time.

As my term as Registrar has terminated, this is probably the last opportunity there will be to exhibit the collection in toto in this State.

I want to take this opportunity to return what knowledge I have gained from the study of these cases, to the many Pathologists, Rontgenologists, Surgeons and Orthopedic Surgeons and other individual practitioners of this State who have helped me make this collection for the American College of Surgeons, and enabled me to show by example that the Medical Profession of at least one State in the Union is not afraid to take the responsibility for its own acts by publicly recording its failures in diagnosis and therapeutics in a series of rare cases.

I know that there are a very few patients with bone sarcoma at present living in Massachusetts whose cases have not yet been registered, but I feel confident in saying that practically all hospital cases and almost all private cases have been registered. I feel also confident that the Registry has been of use to many of these patients and in a few cases probably has saved life and limb.

I am particularly grateful to the Pathologic Department of the Harvard Medical School for the opportunity to have the collection exhibited in the Warren Museum, for the School has already for several years given the use of one of its rooms to the American College of Surgeons for the work of the Registry, as well as a considerable amount of the time of its staff and technicians.

Guests or societies from other cities or states who may see this notice will also be welcome to study the collection during this week.

E. A. Codman, M.D.,
Registrar, Registry of Bone Sarcoma.

OPENING FOR PHYSICIAN

The Journal is informed of an opening for a physician in an attractive New England town of about two thousand people.

REPORTS AND NOTICES OF MEETINGS*

THE ANNUAL MEETING OF THE HARVARD MEDICAL ALUMNI ASSOCIATION

This meeting will be held on Wednesday, June 17th, at the Harvard Medical School, at twelve o'clock.

In addition to the usual reports of the officers, Dr. David L. Edsall, Dean of the Medical School, will address this meeting. Other speakers have been invited.

A luncheon will be served on the terrace at one o'clock.

Most Alumni Associations are to a considerable extent social organizations. Under the leadership of its president, Dr. Elliott P. Joslin, this organization has been committed to the policy of making contributions to medicine through raising of funds for a dormitory for the students of the school and has contributed toward other expenses from time to time.

Under the stimulus of definite responsibilities interest in the Association has grown. This meeting will be well worth attending.

NORTH SHORE MEDICAL FRATERNITY

Editor, Boston Medical and Surgical Journal,
126 Massachusetts Avenue,
Boston, Mass.

A meeting of the North Shore Medical Fraternity was held at the home of Dr. Edward

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**Notices of meetings* must reach the Journal office on the Friday preceding the date of issue in which they are to appear.

Rosen, Shirley Avenue, Revere, on Tuesday evening, May 19, 1925, at 8 p. m. The speaker of the evening was Dr. L. E. Phaneuf, who delivered an interesting and enlightening talk on the Newer Methods of Caesarean Section. A general discussion followed.

It was also voted that the second annual outing take place on June 24, 1925, at Deer Cove Inn, Swampscott, Mass. The committee on arrangements consists of the following members,—Dr. Edward Rosen, Dr. Edward Schon, and Dr. Ellis Michelson.

This organization was instituted and incorporated under the laws of this Commonwealth last year for the purpose of uniting medical men in an informal way, whereby they may exchange views and experiences in such a manner as to uphold the high ideals of our profession and to aid, if possible, the furtherance of Medical Science.

At each meeting we have a speaker, at the close followed by general discussion.

The following is a list of our previous speakers:—Dr. Abraham Myerson, Dr. Carl Bearse, Dr. Michael R. Donovan, Health Commissioner, Lynn; Dr. Harry Linenthal, Dr. Samuel Levine, Dr. Louis Youdin, Dr. L. E. Phaneuf, Dr. Meaker of Harvard Post Graduate Med. School.

Regular meetings are held on the first and third Tuesdays of each month.

Yours very truly,
Ellis Michelson, M.D.,
Publicity Committee.

MEDICAL VETERANS CLUB OF LAWRENCE

A meeting of this club was held at Methuen Tavern Thursday evening, May 14, at 8.30.

Andrew F. Shea, M.D., and Thos. W. Murphy, M.D., presented interesting cases from their practice and J. Forrest Burnham, M.D., gave a Travel Talk upon Glacier National Park, Montana.

J. M. Scanlon, M.D., *Sec.*

WORCESTER DISTRICT MEDICAL SOCIETY

The annual meeting was held at the Worcester Country Club on May 13. In the afternoon a golf tournament took place, and at 6.30 115 members sat down to the Annual Dinner. After the dinner Dr. M. J. O'Meara delivered the Annual Oration on the subject, "Some Phases of Mental Disorder," and Dr. Ralph Jackson of Fall River, Vice-President, representing the State Society, made a few remarks.

Officers elected for 1925-1926 are as follows:

President—Dr. R. P. Watkins, Worcester.

Vice-President—Dr. E. H. Trowbridge, Worcester.

Treasurer—Dr. G. O. Ward, Worcester.

Secretary—Dr. P. H. Cook, Worcester.

Orator—Dr F. H. Washburn, Holden.

Committee on Funds—Dr. Homer Gage, Worcester; Dr. David Harrower, Worcester; Dr. Ray W. Greene, Worcester.

Commissioner of Trials—Dr. W. P. Bowers, Clinton.

Councillors—*Dr. W. P. Bowers, Clinton; *Dr. S. B. Woodward, Worcester; Dr. F. H. Baker, Worcester; Dr. L. R. Bragg, Webster; Dr. W. J. Delahanty, Worcester; Dr. G. A. Dix, Worcester; Dr. G. E. Emery, Worcester; Dr. M. F. Fallon, Worcester; Dr. Homer Gage, Worcester; Dr. J. J. Goodwin, Clinton; Dr. R. W. Greene, Worcester; Dr. David Harrower, Worcester; Dr. E. L. Hunt, Worcester; Dr. A. G. Hurd, Millbury; Dr. A. W. Marsh, Worcester; Dr. L. C. Miller, Worcester; Dr. E. H. Trowbridge, Worcester; Dr. G. O. Ward, Worcester; Dr. F. H. Washburn, Holden.

Councillor on Nominations—Dr. David Harrower, Worcester.

Alternate—Dr. Geo. O. Ward, Worcester.

Censors—Dr. L. C. Miller, Worcester, Supervisor; Dr. L. T. Newhall, Brookfield; Dr. C. A. Sparrow, Worcester; Dr. J. J. Cummings, Worcetser; Dr. Mary A. Charteris, Worcester.

Nominating Committee—Dr. G. C. Lincoln, Worcester; Dr. S. A. Bergin, Worcester; Dr. C. R. Abbott, Clinton; Dr. Winifred M. Grant, Worcester; Dr. E. B. Bigelow, Worcester.

Library Committee—Dr. W. F. Lynch, Wor-Worcester; Dr. E. A. Fisher, Worcester; Dr. W. F. Holzer, Worcester.

Librarian—Dr. A. C. Getchell, Worcester.

Auditing Committee—Dr. Donald Adams, Worcester; Dr. E. A. Fisher Worcester; Dr. J. W. O'Meara, Worcester.

*Councillors for life by virtue of being past presidents of the State Society.

MEETING OF NEW ENGLAND HEART ASSOCIATION

The New England Heart Association met at the Peter Bent Brigham Hospital on Thursday evening, May 21st. Dr. Burton E. Hamilton addressed the association on "The Heart in Thyroid Toxicity." He reviewed observations made on the heart in a large series of thyroid-toxic cases studied at the Deaconess Clinic. These studies have already been published. Only a few outstanding points were mentioned.

The heart behaves the same in all types of thyroid toxicity, whether due to an adenoma, Graves' disease or any other form of hyperactivity of the gland. Heart rates as high as 250 beats per minute have been observed in these cases, without loss of the normal rhythm. Slow rates, however, are not inconsistent with thyroid toxicity.

Usually there is elevation of systolic blood pressure and a depression of diastolic. There is no tendency for both to rise, except under anaesthesia.

Enlargement of the heart is not always present. In the majority of cases, it is impossible to determine whether or not there is enlargement. Some cases show definite enlargement and others show a heart of normal size.

A systolic murmur is very common in thyroid cases. Diastolic murmurs are not found except in complicated cases. There is often a long and loud first sound, which diminishes with the toxicity. Heart block is occasionally found but is thought to be merely a coincidence. There is no evidence of serious damage to the myocardium in thyroid toxicity.

A few cases complain of heart pain but it is seldom severe. Many of these are cases of neuro-circulatory asthenia.

Auricular fibrillation is the most common disturbance of the heart in toxic goitre. It occurs more frequently in thyroid toxicity than in any other condition. The percentage of cases of fibrillation increases with age. Eighty-six per cent of patients over fifty with toxic goitre, have auricular fibrillation. It is more common in those patients with the additional complication of rheumatic heart disease.

The fibrillation usually comes on with an exacerbation of the toxicity. It often develops after a thyroid operation. The patients tolerate these post-operative attacks very well. They recover and rarely have recurrences. Removal of the thyroid toxicity by operation has stopped the auricular fibrillation in many instances. The recovery in a number of apparently hopeless cases has been remarkable.

The occurrence of auricular fibrillation or flutter should make one careful in ruling out thyroid toxicity. Basal metabolism is not helpful in diagnosis of a thyroid toxicity in cases of congestive heart failure. All such cases have auricular fibrillation with very few exceptions. These cases may and have been successfully operated upon with very favorable results. Special pre-operative and post-operative care is very important.

Dr. Carr of Chicago, Dr. Kerr of California and others contributed to the discussion of Dr. Hamilton's paper.

MEETING OF THE HARVARD MEDICAL SOCIETY

The Harvard Medical Society met at the Peter Bent Brigham Hospital on Tuesday evening, May 12th. Dr. W. T. Councilman, who formerly held the professorship of Pathology at the Harvard Medical School, addressed the meeting. The subject of his address was "Things Chinese." Dr. Councilman has recently spent some time in China and he based his remarks on observations he had made of the country and its people.

Speaking first of the physical features of the country, he described the great mountains of the west and the three large river systems of the country. The Yangtze has been properly called "The river of golden sand." The great paln at the mouth of this river is gradually encroaching on the sea. South of the Yangtze where the great rice area extends is found the peculiar so-called "loess" soil. Nowhere in the world is there soil of this character. It is a light brown soil and most finely pulverized. It seems to have been produced by water and wind crossing from the western mountains. Two of the most striking characteristics of this soil is its great porosity and its perpendicular cleavage.

Including the province of Manchuria, Mongolia and Tibet, China is somewhat larger than the United States. In this extensive area, there is a great variety in the character of the people. They are not homogeneous. The interests of the different provinces are very different. The only type of national unity that could exist on a sound basis in China would be one similar to the United States.

The population of China has reached the figure of four hundred million in spite of the greatest disasters due to famines, wars and plagues that are known in history.

Physically the Chinese are of short stature. Those of the north are taller than the people of southern provinces. Their head-hair is always black and straight. They are fond of calling themselves "the black-haired race of Han" after an early Emperor of that name. They rarely have hair on the face, although they would be proud to possess it, and there is a complete absence of hair on the body. They do not have the bodily odor characteristic of white people. This is one thing that makes contact with the white people unpleasant to the Chinese. This absence of bodily hair and odor is characteristic of all the yellow race.

Dr. Councilman considers the Chinese a most intelligent race of people. Some of their early inventions were the compass, gun powder, the use of coal, the manufacture of silk, and their apartment system in boats. The last was devised about a thousand years ago. The Chinese boats are wonders in ingenuity. The junk is the best boat for every condition that can be built. Their implements are wonderfully adapted to the end in view.

In adoption of means to ends they show great intelligence, also in their literature and philosophy. Confucius ranks as one of the great philosophers of the world. Whatever the Chinese have developed or accomplished, they have, unlike other nations, developed independently.

No race can compete with the Chinese. They would be able to drive out the white race if allowed unrestricted entry into California. Every English firm in China has a native executive. In the Straits Settlements many of the great rubber plantations are owned by the Chinese. They are the leading merchants in Singapore. To some extent they are getting the supremacy over the Dutch in Java. Many of the sugar plantations there are owned by Chinese.

Dr. Councilman spoke in a most interesting and humorous way of the foreigner's dependence in China on his head servant or number one boy. If the number one boys went on strike in China the foreigners couldn't live there.

The most abundant food of China is rice. Next to this is millet and corn. Millet is the cheapest of foods and often almost the only food of the poorer classes in some districts. Fowls and pigs are kept but rarely eaten by the Chinese. Meat is too expensive an article of diet to be used generally. They never eat meat if they can sell it. Many of them do not eat animal food at all. They have a great variety of vegetables. Cabbage and sweet potatoes are the most common ones. The sweet potatoes are much better than ours. The Chinese persimmon is a large and most delicious fruit.

In cooking, they always boil, steam or fry the food as roasting is too wasteful of fuel. They have used fireless cookers from time immemorial.

Their custom is to eat in the open air. They are always cheery and merry, a joyous people and easily amused. The Chinese gentleman takes great delight in the care of a pet bird, which he teaches to perform certain tricks. The people are fond of flying kites. Many of these are beautifully designed in the form of various animals. They are devoted to indoor games such as chess and cards, rather than outdoor sports.

It is a fact that the Chinese live on less than other people and yet have a greater capacity for endurance. It has been shown that a growing Chinese boy of sixteen does not consume more than two-thirds the number of calories that would be considered absolutely necessary for a boy of that age in western countries. A man in Peking can exist for a time on two cents a day.

The Chinese method of feeding their children is good. They are nursed for a long period. Then bean foods are used in the dietary. Rickets is not common among them. This shows that their food and general hygiene is not bad. Rickets is much more common among the missionaries' children.

It is not exactly known how common infanticide is. There would be more disparity between sexes if it were very common. Almost every Chinese marries and has no difficulty in getting a wife. There is probably more infanticide in times of famine.

The Chinese family is an important social unit. It holds all the descendants of a common ancestor together. In many places there is an ancestral temple, where all members of the family tree go, at times, to worship. Ancestral worship has interfered with the establishment of Christianity in China. The Franciscans made an enormous appeal in China several centuries ago. There is a good deal of similarity in the Catholic and Buddhist belief. The Pope refused to compromise with the ancestral worship in that early missionary campaign and as a result, the Chinese were kept from adopting the Catholic faith to a great extent.

The family exerts a great influence on all its members. Any member who does not pay his debts at the Chinese New Year is thrown out of the family. This difficulty is usually overcome by borrowing. The Chinese mode of burial is rather unique. The coffin is made of very heavy wood and is very expensive. It is deposited in a field and around it a mound of earth is thrown. The whole face of the country is thickly dotted with these mounds. They are considered sacred and the ground over them is not cultivated.

China has very few forests of great value except in the extreme west, close to Tibet. Beautiful trees such as the cypress, arbor vitae and other varieties are found about their temples.

The Chinese have a great capacity for hard work. They can carry great weights astonishing distances. The great endurance of the jinricksha-men is remarkable. Journeys of ten or fifteen miles by the jinricksha are not uncommon. There is one city on the Yangtze river, with a population of about 600,000; all the water and provisions for this city have to be carried up stone steps from the level of the river to an elevation of several hundred feet.

SOCIETY MEETINGS

NEW ENGLAND STATE MEDICAL SOCIETIES

The annual meetings of the New England State Medical Societies are scheduled as follows:

Maine Medical Association—Bar Harbor, June 23-25, 1925.
Massachusetts Medical Society—Boston, June 9-10, 1925.
Rhode Island Medical Society—Providence, June 4, 1925.
Vermont State Medical Society—St. Johnsbury, Oct. 15-16, 1925.

BOOK REVIEW

Principles of Surgery for Nurses. By M. S. WOLFE. Philadelphia and London: W. B. Saunders Company, 1925. 350 pages, illustrated. Cloth, $3 net.

This book is by no means a treatise on surgical technique but presents the fundamental facts of surgical pathology and the principles and concise presentation of these basic principles make it a desirable text-book for training-schools which endeavor to give their nurses a back-ground for nursing procedures.